

DISTRIBUTION PAGE

JUNE, 1948



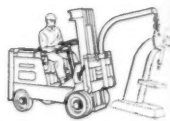
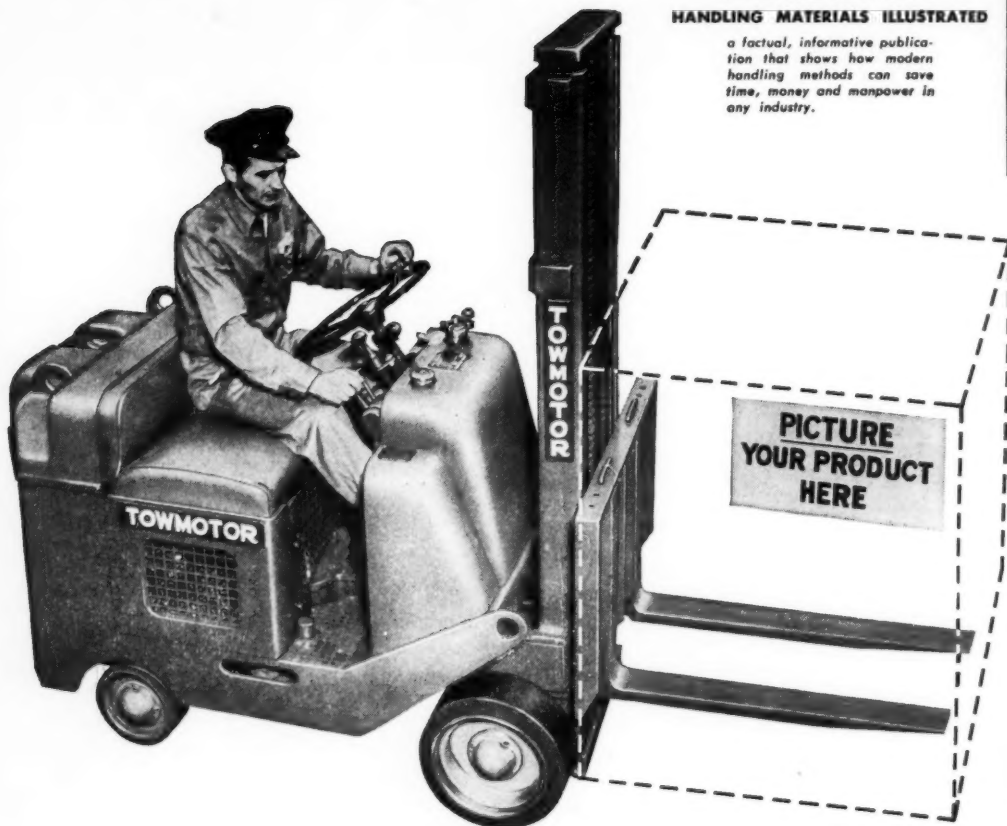
You Need **MH** to Increase Output!

MH is MASS HANDLING — the systematic movement of the most units, in the shortest time, at the lowest cost.

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HANDLING MATERIALS ILLUSTRATED

a factual, informative publication that shows how modern handling methods can save time, money and manpower in any industry.



CRANE ARM

TOWMOTOR CORPORATION, DIVISION 19 • 1226 EAST 152ND STREET • CLEVELAND 10, OHIO
REPRESENTATIVES IN PRINCIPAL CITIES

DON'T BE A VICTIM OF OVER-EXPANSION —

if productive output in your plant can be increased with Towmotor Mass Handling. Towmotor Fork Lift Trucks, Tractors and Accessories will provide an uninterrupted flow of materials that keeps production moving steadily and increases the productive potential of your present equipment and manpower. Take the modern approach to materials handling problems, find out now how Towmotors can increase production in any plant, large or small.



TOWMOTOR

THE ONE-MAN-GANG

Fork Lift Trucks and Tractors

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

HOW A **BAKER TRUCK** CAN CUT A \$38.33 Handling Cost to 59¢

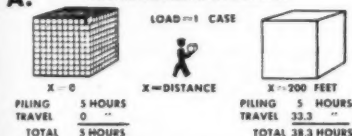
Most material handling problems consist principally of two fundamental operations—(1) Transportation, and (2) Piling. The following simple example shows how a handling operation, costing \$38.33 by hand methods, can be cut to 59¢ by the use of BAKER Fork Trucks and pallets.

THE PROBLEM—To move a pile of 1000 cases a distance of 200 feet and re-pile.

This problem is obviously oversimplified. In practice these operations are repeated many times and with many variations—but the ratio of savings remains essentially the same.



A. SIMPLE MANUAL OPERATION



B. ELECTRIC PALLETIZED FORK TRUCK INCOMING HANDLING SHIPMENT



COST BY HAND METHODS

- 1. Transporting**—Practical Load—1 case. Estimated walking speed 200 ft. per minute. Time—1000 round trips, 2000 minutes or 33.33 hours. Labor cost at \$1.00 per hour \$33.33
 - 2. Piling**—Estimated rate—200 cases per hour. Total time—1000 cases—5 hours. Labor cost at \$1.00 per hour 5.00
- TOTAL COST—HAND METHODS** **\$38.33**

COST WITH BAKER FORK TRUCK AND PALLETS

- 1. Labor Cost**—Pallet load—50 cases. Time per round trip with truck 1.2 minutes (includes picking up pallet load, travel, tiering, and turning around.) Total time—20 round trips, 24 minutes or .4 hours. Labor Cost (Operator at \$1.00 per hour)40
 - 2. Truck Cost**—Annual cost—owning and operating Fork Truck and Pallets \$980.00. Per hr. cost (2000 hrs. per year) 49¢. Cost for .4 hours196
- TOTAL COST—WITH TRUCK** **.596**
- TOTAL SAVINGS—\$37.73, or 98.5%.**

How the cost of Baker Fork Truck-Pallet operation compares with still other handling methods is shown in the charts 1 and 2 at left.

"A" and "F" represent methods discussed above.

"B" and "C" show costs of hand trucking, B with 2-wheel truck—5 cases per load; C with 4-wheel truck—20 cases per load.

"D" represents the conveyor method, where the only labor costs are for piling.

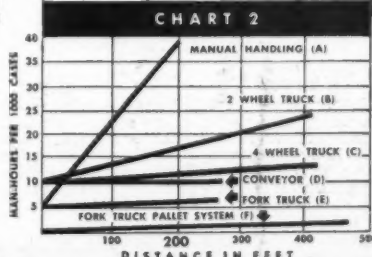
"E" represents costs for Baker Fork Truck operation where cases are not originally palletized.

In Chart 2, the starting point of each line indicates man-hours required for piling, and the path of the line shows man-hours for increasing distances. Obviously, the greater the distance, the greater the savings with BAKER Trucks.

Let a Baker Material Handling engineer show you how similar savings can be made in your plant.

BAKER INDUSTRIAL TRUCK DIVISION
of The Baker-Raulang Company
2176 WEST 25TH STREET • CLEVELAND, OHIO
In Canada: Railway and Power Engineering Corporation, Ltd.

CHART 1			
CASE	LABOR COST	TRUCK COST	TOTAL COST PER 1000 FEET
A (MANUAL)	\$38.30		\$38.30
B (2 WHEEL HAND TRUCK)	\$16.60		\$16.60
C (4 WHEEL HAND TRUCK)	\$11.60		\$11.60
D (CONVEYOR)	\$10.00		\$10.00
E (FORK TRUCK)	\$5.40	.196	\$5.59
F (PALLET-FORK TRUCK SYSTEM)	.40	.196	.59



Baker INDUSTRIAL TRUCKS

ONLY AUTOMATIC SKYLIFT ELECTRIC
TRUCKS GIVE YOU "BURN-OUT PROOF"
SILICONE
INSULATED MOTORS

Skylift Means Uninterrupted
Material Handling
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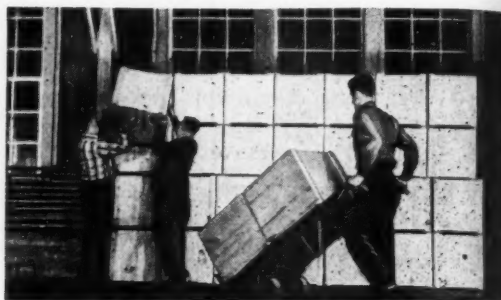
Automatic is First
with **Most** Great Features

- 1** Caster type steering axle, center pivoted and shock-proof. Compensates for uneven floor conditions. Provides easier steering, prevents transmission of road shock to steering wheel.
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Constant starting, stopping, reversing and overloading give an electric motor an awful beating—often cause overheating, which means motor failure, trucks out of service.

Automatic foresaw the demands which would be put on Skylift Electric Trucks, so gave you the protection of **SILICONE MOTOR INSULATION**. This is an exclusive silicone varnish and silicone lubricant that protects Skylift motors, even if overloaded, and even after exposure to temperatures of 300 to 400 degrees Fahrenheit.

This means no armature or field coil failure, no trucks laid up for motor repair, no interruption of Skylift's smooth, efficient money-saving material-handling operation. **NO OTHER** material-handling trucks offer this **EXCLUSIVE** feature!

Only Skylift Gives You
High Pressure Hydraulic Lift!

With Automatic's exclusive patented design, using *high-pressure* hydraulics, you can *raise forks to maximum height of single lift, before increasing overall height of uprights. Forks raise 67 inches before uprights begin to extend!*

As you see by the pictures at the left, you get easy entry into box cars and other low clearance portals. You tier your product to maximum height without uprights jabbing into ceilings. The same Skylift also tiers up to 130 inches high. Only Automatic Skylifts offer you this double-duty money-saving feature, because **ONLY** Skylift Electric Trucks are equipped with **HIGH PRESSURE** Hydraulic Lift. Mail coupon.



AUTOMATIC TRANSPORTATION COMPANY

DIV. OF THE YALE AND TOWNE MFG. CO.
115 W. 87th Street, Dept. H-8, Chicago 20, Ill.

() Send details on Automatic's Skylift Electric Trucks with High Pressure Hydraulic Lift and Silicone Insulated Motors. () Have an ATCO Specialist make a free survey of our material-handling costs.

Company Name.....
By.....
Street Address.....
City.....Zone.....State.....

The stowing on shipboard of the relief shipment of dried eggs, illustrated by this month's cover, is but a single, intermediate step in a series of related distribution activities extending from the farm to famine areas in Europe . . . If totalitarian ideologies abroad are to be resisted through better living, while at the same time more things are being made possible for more people here at home, the overall cost of distribution must be reduced through more efficiency and coordination at those points where one basic distributive activity connects with the other. USDA Photo by Forsythe.

DISTRIBUTION AGE

The Magazine That Integrates All Phases Of Distribution

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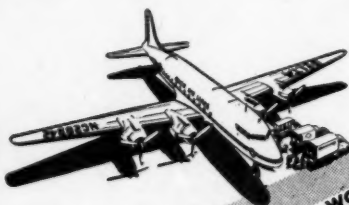
STATEMENT OF POLICY . . . Our policy is based on the premise that distribution embraces all activities incident to the movement of goods in commerce. If distribution is to be made more efficient and economical, we believe business management must consider more than sales, because more than sales are involved. Marketing, while vital, is one phase only of distribution; seven other practical activities not only are necessary but condition marketing costs. Most commodities require handling, packing, transportation, warehousing, financing, insurance, and service and maintenance of one kind or another before, during or after marketing. We regard all of these activities as essential parts of distribution. Hence, the policy of DISTRIBUTION AGE is to give its readers sound ideas and factual information on methods and practices that will help them to improve and simplify their operations and to standardize and reduce their costs in all phases of distribution.

New, Fast AIR FREIGHT SERVICE

FROM DETROIT

TO *Delta land*

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Delta also operates all-cargo "Flying Freighters" between Chicago-Cincinnati-Atlanta-Birmingham-New Orleans-Dallas-Fort Worth.



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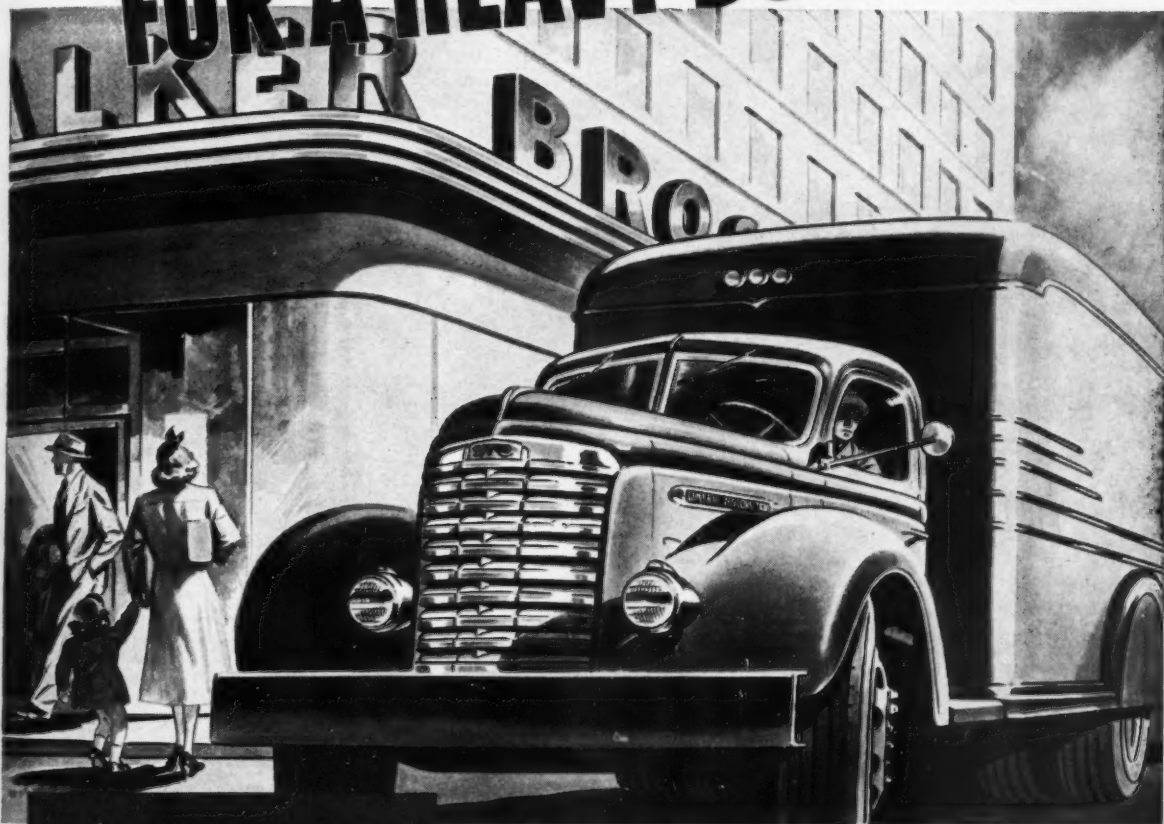
Typical Rates ... Here are examples of rates between Delta cities and these new points. For system-wide rates, and flight schedules, call any Delta office. Or write Air Freight Department, Delta Air Lines, Atlanta.

Rates per 100 Pounds Between:

Detroit-Atlanta	\$6.55	Dayton-New Orleans	\$8.95
Birmingham-Detroit	7.55	Detroit-Knoxville	5.55
New Orleans-Detroit	9.90	Toledo-Birmingham	7.65
Atlanta-Toledo	6.55	Detroit-Shreveport	11.07

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TWA AIR CARGO "SAVES ON SHIPPING"... SAVES TIME...INSURANCE...WAREHOUSING...AND LOWEST RATES IN TWA HISTORY ALSO SAVE YOU MONEY.



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VIA **TWA**...LET TWA KNOW WHEN YOU PLAN SHIPMENT. SPACE WILL BE RESERVED. SAVES TIME... ASSURES PROMPT DELIVERY.



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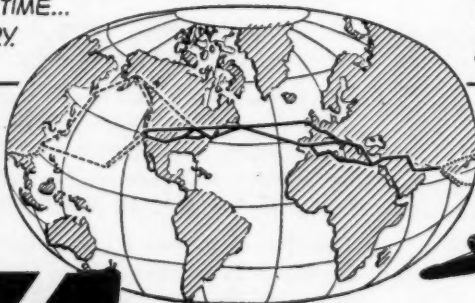


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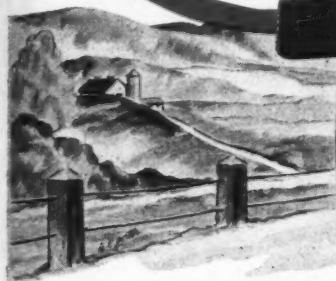
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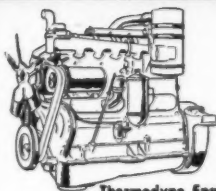
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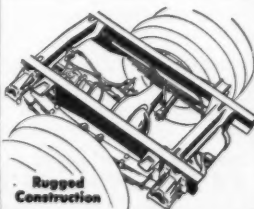
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GOVERNOR

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GOVERNOR'S OFFICE
SACRAMENTO

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Sincerely,

Earl Warren
Governor



Earl Warren

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*Address Industrial Department, Union Pacific Railroad
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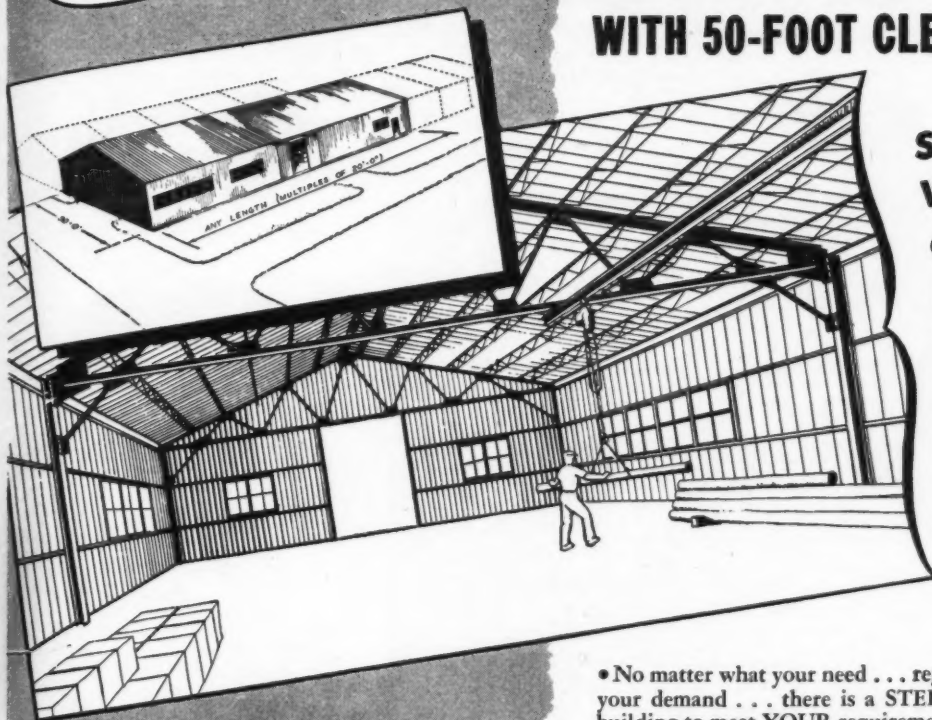
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Road of the Daily Streamliners

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WITH 50-FOOT CLEAR SPAN!



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• Aetna heavy-duty main load bearing.



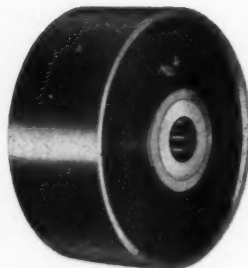
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• Timken thrust bearing.



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• Forged steel wheel of unique design. Machined face. 2 1/2" tread width.

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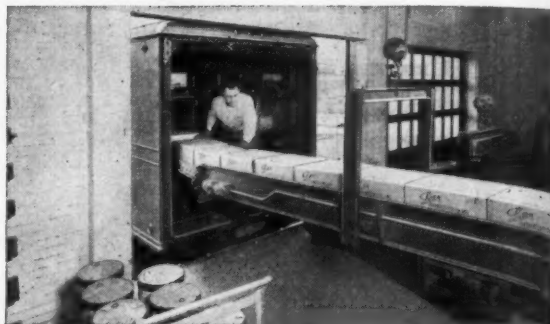
City..... Zone..... State.....

Good Dock Design

...KEEPS PRODUCTS *FLOWING* IN AND OUT OF THIS PLANT!



1. Eli Lilly & Company, Indianapolis, makers of pharmaceutical and biological products, depends upon motor transport for handling the major part of its shipments. Here Trailers deliver bottled and packaged goods from the company's main plant to this central warehouse for shipment.



2. Electrically controlled conveyor arms link conveyor racks —hinged to the Trailers sides—with storage bins within the plant. These labor-savers permit speedy unloading of incoming packages and basket packed goods. Breakage losses are cut to a minimum by this streamlined method.



3. A network of electrically powered conveyor belts—more than a mile in length—handle internal distribution, both in and out of the warehouse. Cable-controlled switches permit stopping and starting of the belts at any point along their length. Hinged sections permit cross traffic of hand and lift trucks.



4. Conveyor lines terminate at the mailing dock and shipping platform. Here shipments are checked out to insure proper routing before they are loaded into waiting Trailers and trucks for over-the-road hauling or delivery to rail heads. All domestic and foreign shipments cross this dock.



5. This view shows the 280 ft. shipping dock. Note four major counterbalanced conveyors. Coupled with portable units, they permit mechanical handling right into the vehicles themselves. Smooth floors and light-weight magnesium dock plates simplify hand-truck loading.



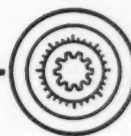
6. The entire handling system, from the beginning to this 15-lane dock, was planned by the Shipping Department, working in conjunction with plant engineers. Five electrically controlled safety-type doors—each 3-Trailer width—fully enclose all vehicles and power units.



When you build or remodel your plant, be sure your Traffic or Shipping Manager, your Architect and a representative of Motor Transport serve on your planning committee.



WORLD'S LARGEST BUILDERS OF TRUCK-TRAILERS
FRUEHAUF TRAILER COMPANY ♦ SERVICE IN PRINCIPAL CITIES
DETROIT 32



Packaging and Packing

IT IS customary for management to place major emphasis on the effectiveness of package design in creating demand at the point where the product and the consumer meet.

The possibility of lowering distribution costs through better packing of the "packaged" product too often receives little, or no, attention; the potential savings resulting from such consideration frequently are viewed as representing so small a segment of the overall distribution cost as to be scarcely a legitimate concern of top management. But efficient packing, which seeks not only to protect goods in transit but to facilitate handling and storage, is fully as important as is the purely marketing appeal of the package itself. The way merchandise is packed for shipment determines methods and costs of handling, of transportation and of warehousing. These have a bearing on insurance rates. All, in turn, are factors in the manufacturer's total cost of distribution and these factors are reflected in the price the consumer must pay. If the overall cost of distribution is to be reduced, package design must be coordinated with each, and all, of the various other distributive activities at those points where one connects with the other. The traffic manager and the materials handling manager, for example, are as much concerned with package design as are the sales manager and the advertising director, and unless they are brought into the picture by top management, the financial losses incurred through faulty, inefficient physical distribution can seriously offset the profits resulting from the "sales appeal" on goods on dealers' shelves.

The Basing Point Decision

WHAT WILL be the effect of the recent Supreme Court decision in the Cement Institute case making collusive use of the basing point system unlawful? To date, no clear, unbiased and decisive analysis of the decision from the standpoint of the legalist or the economist has appeared. Arnold Kruckman, reporting in this issue from the nation's capital, states that opinion in Washington foresees no immediate effect on the costs of distribution. He warns, however, against hasty conclusions, and quotes from a statement issued by the Federal Trade Commission to the effect that the

recent case, adjudicated after eleven years of effort, will have a "definite and substantial impact upon the status of similar systems of identical delivered prices used by a number of heavy goods industries. In the aggregate, the commodities priced under such systems are important factors in the cost of housing and other construction and of semi-fabricated products used as raw materials in a host of other industries."

Similar decisions, Mr. Kruckman states, are awaited in pending cases involving steel products, paper, and other commodities. The Supreme Court has already rendered a decision ordering the American Refractories Institute and its 37 members to cease the use of a price combination involving freight equalization and a delivered price system, as well as a zone delivered price system. It is expected, according to Mr. Kruckman, that the present hearings charging steel producers with collusive price fixing through the use of the basing point system will be settled as a result of this decision. It is anticipated that "more mills will withdraw their pipe and other products from markets distant from their plants. The freight absorption practiced by the automobile industry also is expected to be barred. What effect the present situation will have on decentralization, so urgently desired by the national military establishment, is not yet clear. The steel manufacturers have said that they cannot decentralize because of excessive costs involved. The heavy goods producers who distribute on a national basis are expected to find it difficult to compete with smaller local producers since they have the disadvantage of long freight hauls. Producers with scattered plants are expected to have marked advantages in the immediate developments ahead."

Lowell Mason, speaking as an individual rather than in his official capacity as Federal Trade Commissioner, told the Marketing Club of the Harvard Graduate School of Business Administration, that in his opinion, the Supreme Court decision means: 1. The multiple basing point pricing system is out. 2. Freight absorption is out. 3. Zone prices are out. 4. The universal delivered pricing system is out.

D.J. Witherspoon
Editor

DA NEXT MONTH

LETTERS to the Editor

Topics to be discussed in DISTRIBUTION AGE for July include:

CURRENT TRENDS AND DEVELOPMENTS IN MATERIALS HANDLING . . . Management, grasping at any means of reducing unit costs, is becoming increasingly aware of the terrific wastes incurred in antiquated handling methods . . . Better handling can expedite packaging, speed up transportation, minimize insurance costs, keep down storage charges and step up marketing . . . July DA, in featuring practical, down-to-earth articles by staff correspondents and outstanding authorities in industry, will make a notable contribution to current materials handling "know-how."

AIRCARGO "DOWN UNDER" . . . H. Bowden Fletcher, special correspondent from Australia, describes the recent movement by air of heavy machinery for the five brass and copper strip rolling mills of Austral Bronze, Ltd., which produces 90 percent of Australia's requirements.

MARKETING EFFICIENCY . . . Three and a half million babies and a national income of 202 billion dollars a year are two of the factors that will greatly affect marketing in the next few years . . . But distribution costs must be pared to the bone and efficiency increased, warns Dr. John Dean Gaffey, head of the department of marketing, University of Southern California, if full advantage is to be taken of the situation.

TRAFFIC MANAGEMENT IN DISTRIBUTION . . . The role of traffic management is vital in industry, because it coordinates the various phases of distribution in order to get products to the ultimate consumer more efficiently and cheaply . . . J. W. Witherspoon, assistant general traffic manager, U. S. Rubber Co., and general secretary, Pacific Coast Transportation Advisory Board, describes U. S. Rubber's traffic setup, its several divisions and the particular tasks of each.

PROGRESSIVE PORTS—LONG BEACH . . . All phases of distribution play a part in a modern port. Materials handling must be utilized to the fullest to provide fast, efficient cargo loading and unloading, and warehouses in the port area must provide large, convenient storage spaces. Dock space for numerous large ocean-going freighters must be closely linked with a network of highways and railroads for maximum speed and efficiency in distribution . . . Long Beach, Calif., is planning to spend 80 to 100 million dollars in the next 20 to 25 years for a long range port modernization program.

Income Tax

Sir:

Please advise if an individual can deduct social security and unemployment tax from income in building a residence or commercial building under the following circumstances:

Construction was performed on the flat fee basis, payroll made by the contractor. However, owner reimbursed the contractor every two weeks for the net amount of labor plus social security and unemployment tax. The contractor did not take benefit of tax paid, as he was reimbursed.

Please advise if the owner of building could deduct said net amount of tax from his income.

—H. Abb Wooldridge, Jr., President, Abb's Transfer & Service Co., Inc., Mobile, Ala.

Editor's Note: We referred this letter to our Legal Consultant, Mr. Leo T. Parker, who replies as follows:

Sir:

Although your question should be presented to a Federal Income Tax expert, I shall endeavor to give you the desired information.

I presume you know that Social Security taxes are deductible expenses, that is for business purposes. Hence, if you make a contract with a contractor who pays these taxes, you are entitled to deduct all of the contractor's bill, on the basis allowable as "depreciation." This means, of course, that you cannot deduct the total cost in a single year. You may make the deduction in accordance with allowable valuation per year over the number of years acceptable and in accordance with present laws. This is the law as to business improvement, and structures, but it is not law as to residences. The Federal Courts have very consistently held that if you "earn" a profit on the sale of your residence you must pay the government taxes thereon. If you have held it for more than six months you pay only on one-half of the profits because it is listed as long term capital investment. On the other hand, you cannot list as deductible any loss you sustain when selling your residence. This is absolutely irrespective of the time you held it or lived in it. Therefore, if a contractor charged a stated amount for building a residence and you earned a profit on its sale, the total cost including the taxes paid by the contractor is your cost price. The same is applicable to a business structure, except that you must conform with the government's regulations as to what part of the total construction cost is deductible each year. This latter depends on the time you held it for business purposes.

L. T. P.

Statute of Limitations

Sir:

On Sept. 25, 1947, we received a sheaf of Motor Freight Bills dated 1-19-45 through 5-8-45 covering interstate shipments from Ohio into Pennsylvania, on which claims were made due to undercharge. The tariff authority for these claims is specified as follows: "Central States Tariff 203B which provides for a 4th Class restriction on a two-line haul. The attached bills have been raised from Class 40 or 40% to 4th Class or 50%, as provided for in the tariff."

We wrote on Jan. 6 refusing payment on the basis that the statute of limitations covering undercharges on Interstate Motor Freight is two years. We received a reply to our letter covering rejection of the claims, as follows:

"These freight bills are over two years old, however, they do not exceed the statute of limitations, because at the time of shipment, the statute of limitations was six years. The two year statute of limitations, as mentioned in your letter, went into effect in the early part of 1946, and applies only on shipments made after that date."

We would greatly appreciate receiving your advice regarding the legality of these claims.

—I. J. Oesterling, Asst. Works Mgr., Herman Pneumatic Machine Co., Zelenople, Pa.

Editor's Note: We referred this letter to our Legal Consultant, Mr. Leo T. Parker, who replies as follows:

It is true, of course, that a statute of limitation is effective only from date of its enactment. In other words, one who rely on contract obligations incurred through provisions of valid law cannot be deprived of their legal rights assumed under these valid laws then in effect as a basis for their assumed obligations. Hence, a later law changing or "outlawing" claims for undercharge in two years will not affect legal obligations of shippers for claims incurred at the time the older statute was in effect "outlawing" the claims in six years.—L. T. P.

Household Goods

Sir:

Your April issue contained an article on "Freight Rates Based on Valuation" mentioning household goods but not developing the subject. It would be interesting and informative to have a special article on household goods in an early issue.

—T. C. Shelburne, Pres., Shelburne Transfer & Storage Corp., Richmond.

Editor's Note: Henry G. Elwell, author of the article mentioned, plans to discuss the subject in the near future.



The International Truck Point Rating System Establishes Accurate Vehicle Weight Ratings

● From International Model KB-5 up, gross vehicle weight ratings for International Trucks are shown as minimum and maximum.

Take the KB-5. The gross vehicle weight rating range of the KB-5 is shown as 13,500 to 17,500 pounds.

Now, take the KB-8-1 — International's New Standard of the Highway. The KB-8-1 is a truck-tractor. Its gross combination weight rating range, tractor and semi-trailer, is shown as 40,000 to 48,000 pounds.

However, the actual gross weight ratings of these two models, and of other Internationals from the KB-5 up, are calculated according to the work each vehicle does and the conditions under which it does its work—the conditions that determine the actual strain put on the vehicle.

This calculation is based on the International Truck Point Rating System, a scientific method for

calculating how much payload each International should carry to perform best for its owner — *his load and his operating conditions considered.*

And in every case the safety factor — the extra margin of strength — is the same for each model irrespective of the G.V.W. assigned by the Point Rating System.

The International Truck Point Rating System is an exclusive International Service. It is a scientific system — Note that! — and not a procedure for guessing.

Any International Dealer or Branch will be glad to furnish any truck operator or owner with a concise demonstration of how the International Truck Point Rating System works — of how it establishes accurate gross weight ratings under all conditions.

Motor Truck Division

INTERNATIONAL HARVESTER COMPANY

180 North Michigan Avenue

Chicago 1, Illinois



Tune in James Melton on "Harvest of Stars," CBS Wednesday



INTERNATIONAL Trucks

See what NAILABLE STEEL FLOORING means to *Shippers*



If you ship goods in boxcars, gondolas or flatcars you'll want to know what NAILABLE STEEL FLOORING can do for shippers. Check these points that show how it can increase your car supply, cut damage to goods in transit and simplify freight handling.

INCREASED CAR AVAILABILITY

In gondolas, NAILABLE STEEL FLOORING makes an all-purpose car suitable for *any* type of freight—finished goods, rough heavy materials, fine bulk freight. It does the job of *both* wood-floor cars and conventional steel-plate-floor gondolas. Empty car switching and assembling to provide equipment for the particular lading is drastically reduced. In boxcars, too, NAILABLE STEEL FLOORING cuts car suitability problems. Unlike present flooring, it's built to *stay* in good condition for all types of freight for the life of the car. If it's a NAILABLE STEEL FLOOR you *know* it will handle the freight.

MORE PROTECTION TO LADING

With up to 400% greater nail-holding force than wood, NAILABLE STEEL FLOORING assures more

BULKHEAD BLOCKING BEING PLACED ON NAILABLE STEEL FLOORING. The channels are spaced to provide greater nail-holding force than that of wood—yet nails can be readily removed without damage to the floor. A self-sealing plastic in the nailing grooves prevents loss of fine freight carried in bulk.



secure blocking, less damage to goods in transit. No splinters or sharp edges can damage freight or injure men working in cars. Spilled liquids aren't absorbed; and can be easily cleaned off to avoid contaminating subsequent freight. When goods are shipped on NAILABLE STEEL FLOORS, there's a better chance they'll reach the consignee just as you sent them.

EASIER FREIGHT HANDLING

No need to worry about fork trucks breaking through NAILABLE STEEL FLOORING; it readily supports the largest trucks used in boxcars. Unloading with shovels, scrapers and clamshell buckets is quicker and easier, because the surface is smooth, flat and free from splinters. The same qualities provide faster and more complete car cleaning, too.

These features of NAILABLE STEEL FLOORING add up to real advantages for shippers as well as carriers. If you haven't yet seen a car equipped with NAILABLE STEEL FLOORING, and would like to, write us, and we'll let you know when there's one in your area.

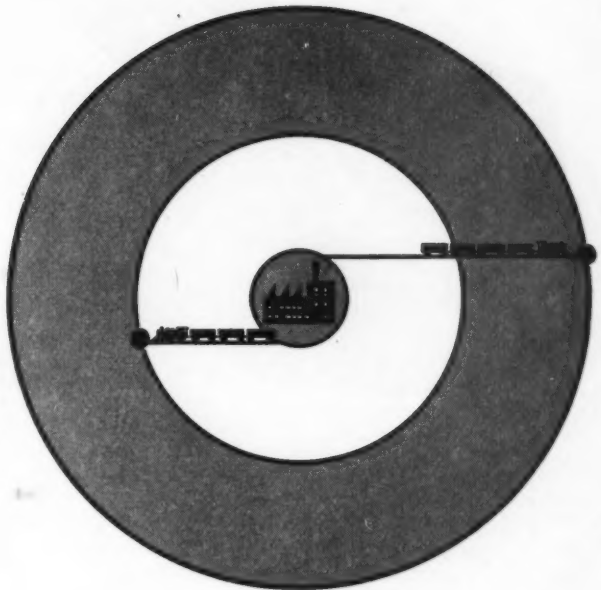
GREAT LAKES STEEL CORPORATION
Steel Floor Division, Penobscot Bldg., Detroit 26, Mich.
UNIT OF NATIONAL STEEL CORPORATION

PATENTS PENDING

The Basing Point Decision

The recent Supreme Court decision making collusive use of the basing point system for price fixing unlawful, is creating much uncertainty as to its ultimate effect upon distribution costs.

By ARNOLD KRUCKMAN
Washington Correspondent



THE recent basing-point decision against the Cement Institute will apparently have little or no immediate effect upon distribution costs. The ruling of the Supreme Court does not wipe out the use of the basing-point system. It makes its use unlawful in collusion or combination, or by any other method of ganging up that enables persons or corporations in the same business to establish identical prices which are unfair and constitute discrimination. It is perfectly legal for any individual business unit to use the basing point system so long as its use is equitable to the buyers and to one's competitors. It may not be used, however, to collect more money as freight charges from one customer and to apply the surplus in placing another customer at a greater distance on the same footing as the buyer who is nearby.

As the law is understood under present circumstances, its chief purpose is to permit competing producers to serve customers who otherwise would not be potential customers by reason of the fact that freight costs to them would be greater than from another manufacturer. For example, we'll

say the cost of an article is \$1.50 per unit. The freight to the destination where the customer is located is 50c. The basing point price, let's say, is set at \$2.00. The freight from the point where the other producer is located is 75c on the same article. Under the method of applying the basing-point system independently, but not in combination with other manufacturers of like or similar products, the manufacturer may meet his competitor's advantage—of 25c—by absorbing 25c of the freight rate which would otherwise debar him from doing business in that area; he would quote the customer \$2.00, exactly the same price given by his competitor who has an advantage in the freight rate.

On the other hand, let us say that the producer is located at Chicago. He has a customer at Joliet, and another at St. Louis. Obviously the distributor-customer at Joliet is in competition with the distributor-customer at St. Louis. Patently, the freight rate from Chicago to Joliet is far less than the freight rate from Chicago to St. Louis. Therefore it is illegal for the producer in Chicago to

establish a basing-point rate of \$2.00 (which including the freight rate to St. Louis, would be the price of the article), and charge \$2.00 for his article to the customer in Joliet. The customer in Joliet would clearly be helping to pay the freight for the shipment to the customer in St. Louis, and by being placed on the same basis as the customer in St. Louis he would probably be deprived of an outlet for some of his goods. It is therefore the judgment of the juridicial bodies that the customer in St. Louis should pay the base cost of the article, \$1.50, plus the actual freight charges, which might be from 30 to 40c more than the freight charges to Joliet. In other words, the distributor in Joliet might be able to obtain his goods at the unit cost of \$1.50, plus 10 or 20c freight.

This leads to the consideration of uniform pricing, the establishment of the price for chewing gum, for instance, which, say, is 5c wherever you buy it, delivered at your point of destination. Naturally in a selling and buying transaction of this type the manufacturer absorbs the freight
(Continued on Page 76)



Shipping package design begins with proper protection from internal jostling as well as outside shocks.

WANTED:

AS one observes goods in transportation, as one attempts to comprehend and analyze the growing figures totaling annual damage claims in rail transportation, or as one looks behind the scenes for causes of the accumulation of damaged cargo in containers stamped "Made in U.S.A." on piers around the world, there comes a shocking realization that once again a primer is needed for good packing and crating.

By "primer" we mean two



An assembled operating unit is given the added protection of wood where the item does not in itself offer protection.



Careful inner packing, bracing and cushioning often permit unusual economies in selecting outer container.

: A Packing Primer

Mounting damage claims resulting from poor export packing indicate that a primer of basic methods and procedures is needed.

By CHARLES L. SAPERSTEIN, *Packaging Consultant*

things. The ordinary meaning is a sort of first-reader, the fundamental principles of a given subject—in other words, basic information or the downright “know-how” in the lowest and simplest levels. Yes, this first meaning has a place and is badly needed in today’s cargo preparation picture. But the second meaning implies much more of a wallop towards springboarding a dormant object into action and somehow, whenever the second meaning is engendered, the first manages to take

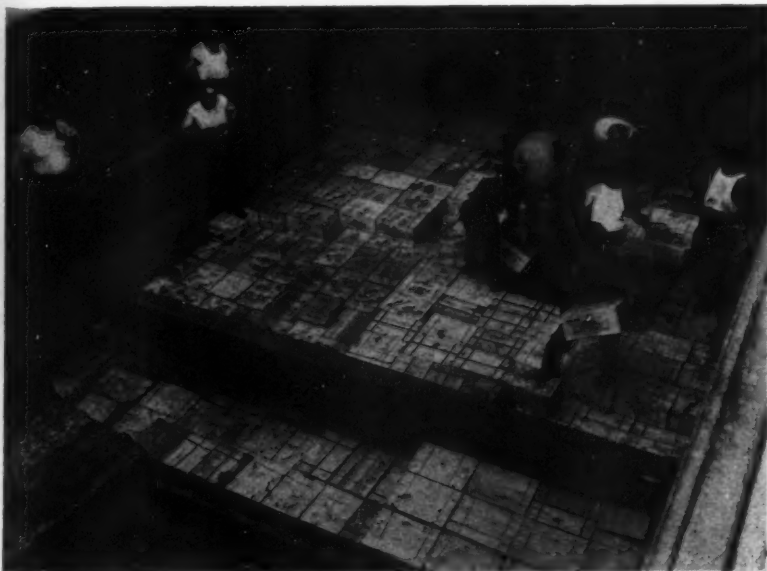
care of itself.

The second meaning of a “primer” is a small amount of powder or other substance used to set off a far greater blast. In 1943 and 1944, packaging and cargo preparation had the necessary impetus not only for seeking new knowledge but for the wholesale translation of this knowledge into action. Our matériel shipments of 1942 were arriving at the war fronts by and large in damaged condition. Lives of our fellow-citizens—often our own relatives

—were at stake. More and more stringent specifications for packing were drawn and American shipping rose to meet the challenge. Once more we need a primer to shock us into a realization as to how far packing and crating methods have deteriorated.

That there has been a worsening of the general quality of packing, requires only a study of cargo at any type of freight terminal to verify. It would appear that packing for shipment has passed

(Continued on Page 62)



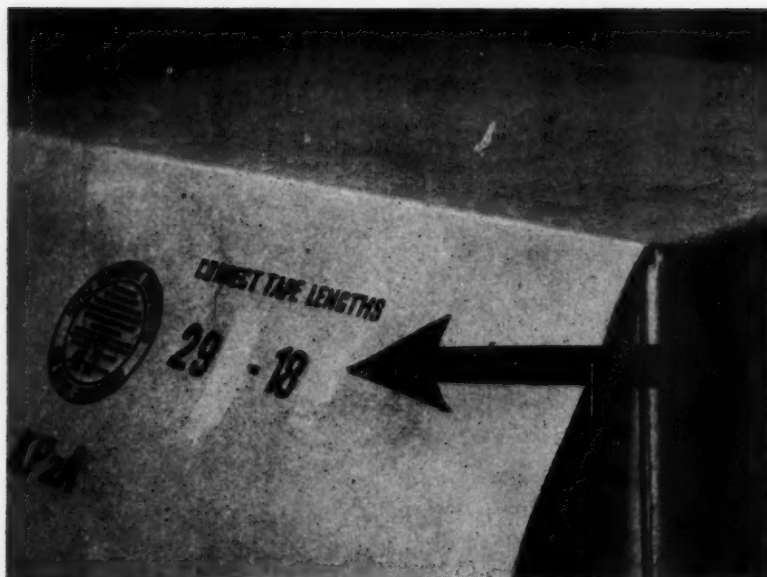
Style one, or cleatless boxes, in export should be confined to weight under 100 lb. and fairly compact loads, as illustrated in this shipment to Europe.

Gummed Tape for



An automatic moistening control machine, which assures even wetting and correct lengths of tape.

Below: If tape lengths needed are marked on containers, time is saved and no tape is wasted. Right: Properly applied tape will tear the surface of the container before it will let go.



GUMMED tape as a closure method has long been accepted by all types of carriers—the motor truck people, the railroads and airlines, the express companies, the steamship lines, and the U. S. Post Office Department. Generally accepted as safe and convenient, when properly moistened and applied, gummed tape has many advantages.

There are, however, certain minimum requirements that must be fulfilled. The freight and express minimum requirement for gummed



r Safe Closure

Gummed tape long has been employed as a method of safe closure because it gives added strength, keeps out dust and dirt and can carry a printed advertising message . . . Semi-automatic and automatic moistening control machines assure even wetting and correct tape lengths.

tape is that not less than 60 lb. basis weight and not less than 2 in. in width be used. The parcel post minimum requirement is that 60 lb. basis weight and not less than 2½ in. in width be used. There are also certain specific instructions as to where the tape should be applied on a shipping container. Complete details are covered in the regulation for each type of carrier.

The advantages of gummed tape are many:

1. Gummed tape actually adds strength to a shipping container. It adds this strength where needed most, at the center seams, the end flaps, and at the corners.

2. Gummed tape makes a dust and dirt free container, keeping the contents clean during transit and storage.

2. Gummed tape tends to keep out moisture. On many products this alone is an important feature.

4. Gummed tape is an inexpensive, fast closure method.

5. Gummed tape can "take it" according to government tumble tests.

6. Gummed tape, when printed, is often used to discourage pilferage. It also serves as an excellent advertising medium and for product identification.

The apparent simplicity of the sticking process should not lead

to the assumption that gummed tape adheres to a shipping container simply because it is sticky like medical adhesive tape. Medical adhesive tape retains its tackiness indefinitely and can be used time and again if desired. However, a shipper gets only one chance to make the tape strip stick—it must be properly conditioned and applied the first time.

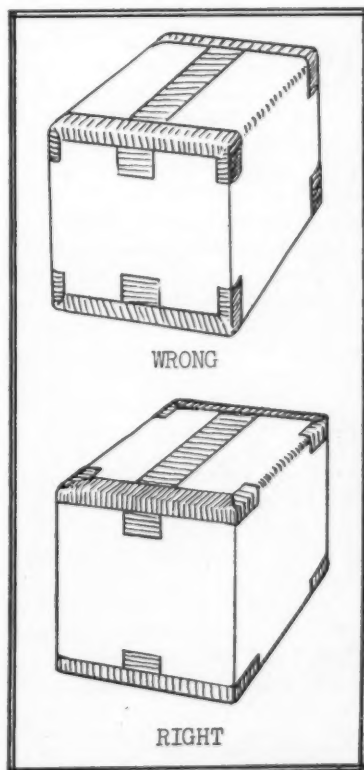
When a strip of tape is moistened, the tacky quality disappears after the moisture has evaporated. Obviously, therefore, some other action takes place which retains adhesiveness indefinitely after a tape strip has been applied to a shipping container.

The permanent grip of gummed sealing tape is created by the bond formed between the soluble glue of the tape and the thousands of tiny fibers of the carton through which the glue penetrates. When moisture is applied to gummed sealing tape, the glue dissolves into a fluid solution. When this solution of glue and water is applied to the carton skin it penetrates into the dry porous surface. After the water has evaporated, thousands of container fibers are filled with pure glue from the surface of the tape. Tape, properly conditioned for maximum penetration, consequently forms an inseparable bond between tape and container. Any attempt to remove the tape which has been thoroughly con-

(Continued on Page 72)



By DON BUDGE
Better Packages, Inc.





Paperboard Prospects

At present one-half, or 10 million tons a year, of the total production of all paper is paperboard . . . This industry's optimistic attitude is based on intelligent forestry planning and on the growing use of paperboard in new fields.

By J. D. MALCOLMSON
Director Products Development
Robert Gair Co., Inc.

MOST people that are not directly connected with paperboard are surprised to learn of the great tonnage of this material now being produced and of its rapid growth in recent years. Perhaps a few statistics will help to illustrate these points, but it should be borne in mind that paperboard statistics often need considerable clarification, due to the fact that there is always a question as to whether or not to include such products as building boards, wall boards and the like which may account for as much as one million tons per annum. It so happens that at this particular point in our industry history, we can talk in round numbers that are easy to remember. The present production of all paper is running in the neighborhood of 20 million tons per annum, and almost exactly half of this, or about 10 million tons, is paperboard. In-

Pallet loads of X-boxes. These boxes were developed by the container industry during the war and could stand complete immersion without disintegration.



Talk delivered at the Fifteenth Anniversary Meeting, National Fibre Can & Tube Association, Hotel Astor, New York.

identally, this latter figure can again be cut in half by stating that corrugated boxes are being produced at a rate of about 5 million tons a year.

It is only in recent years that paperboard has reached this stature, and the following figures may give some indication of the speed of its growth in comparison with all paper. For example, in 1900 the per capita consumption of all paper was about 50 lb. a year, but for paperboard this figure was only about 10 lb. Since that time, the production of all paper has increased 10 times, but the per capita consumption of paperboard has increased about 13 times as compared with about 6 times for all paper; in other words, the growth of paperboard on a per capita basis has been almost twice as fast as that for all paper, which is an indication that the cause of this growth was not simply increase in population. It is also interesting to note that the production of paperboard has doubled just in the last 10 years.

In spite of this growth, paperboard production capacity is still increasing at a rapid rate. Thus in 1947, 11 new board mills were put into operation, while 17 new mills are planned for 1948. This makes a total new tonnage of about 1 1/3 million tons for these two years, and it is significant that about 3/4 of this new tonnage will be container board.

These figures naturally suggest two important questions: first, where is all the raw material coming from to make this board, and second, where is it all going to be sold? I am glad to say that the industry feels very optimistic in regard to the answers to both questions.

While it is true that there is an increase in the importation of foreign pulp due to the European desire for American currency, the principal source of this raw material will be Southern slash pine. For a while when so many new plants were being built in the South, there were some fears that the economically located supply of pine trees might become exhausted. However, it now appears that this worry has been permanently eliminated due to the adoption and

enforcement of intelligent forestry. The mills have learned that in order to stay in business, one of their most important men must be the chief forester. He is being given absolute authority when it comes to deciding which trees to cut, and this selection is being done in such a way as to accelerate the growth of the remaining trees due to greater access of air and sunlight. This is true whether the trees are being cut on company property or on leased land.

In addition to that, seeds or seedlings are being planted by automatic machinery on bare ground that is not suitable for farming. Many of the pulp mills operate regular professional nurseries for the development of seedlings. Fire lanes are cut at regular intervals, and farmers and contractors are urged to discontinue the practice of burning off the brush once a year, as this destroys new pine tree growth. Power driven low slung saws are used to cut the trees close to the ground, thus saving pulpwood previously lost in high stumps. The idea of considering these trees as a crop is furthered by the recovery of valuable by-products such as turpentine, rosin and tall oil.

In a natural growing southern forest where the trees are close together, it often takes as much as twenty years to develop trunks of pulpwood size. On the other hand, if trees are planted in rows and cultivated like an orchard, this period can be cut down to about seven years. However, under present economical conditions this type of planting is too expensive, so it is hoped that the scientific forestry as described above will result in some happy medium whereby the wood comes to proper size in say 12 to 15 years.

As a result of this application of scientific forestry, and the determination to keep up the good work, Southern pulp mills now feel assured of adequate supplies of wood in perpetuity. In other words, a given area of land can be made to furnish an entirely new crop of wood every 15 years.

How are we going to sell all this new tonnage? The answer is, partly by the normal growth of

the industry and partly by the development of new paperboard production. Two outstanding fields for new products are undoubtedly export shipping containers and the packaging of perishables.

During the war, the container industry developed the famous "V" box which would withstand immersion in water without disintegration. At the time of the North African invasion, commanding officers were cabling Washington to stop shipping merchandise in "paper boxes," as these ordinary commercial containers were falling to pieces, especially when damp. Towards the close of the war, cables were coming in from the South Pacific insisting that nothing but V-boxes be used, because of the fact that they could be stored outdoors in the rain without warping or falling apart. By V-J Day, the industry was producing 30 million V-boxes per month. Of course, the V container is too expensive for commercial use, and by the same token the present domestic fibre container will not stand up for export. Accordingly, the industry has developed a new box known as the Vus container (U standing for underwriters), which is less expensive than the war-time V-box but which has equal resistance to water immersion and to rough handling. With much of Europe's pre-war export business, especially to South America, dropped in our lap, there seems to be a very bright future for this Vus container.

The shipment of perishables has always been a headache to the paperboard industry because these commodities contain considerable moisture and are often kept in damp cold storage warehouses. Fruits and vegetables represent one of the largest tonnage items in our daily economy and the pre-packaging of these goods at the source is receiving concentrated attention at this moment. The same is true of other perishables such as meat and dairy products. Certainly it does not seem economical to ship vegetables as they come from the field clear across the country with the resultant waste and spoilage that is unavoidable

(Continued on Page 71)

PALLETIZATION

in the Multi-Story Warehouse

Quincy's change from manual to mechanized handling involved three basic steps: 1. A study of the physical conditions and layout. 2. An analysis of commodities and packaging. 3. An analysis to determine the best type of equipment.

By JAMES J. GALLERY, *Methods Engineer*
The Quincy Market Cold Storage and Warehouse Co.

USUALLY the most expensive, most troublesome, and most important function of any public warehouse operation is the handling and movement of commodities. Materials handling consists of over 75 percent of all work done in the warehouse, whether it be a multi-story or

single story building. Any new method that will improve the present handling operation would tend to reduce the cost of the whole operation. Because of the increased cost of labor, warehouse management has had to consider materials handling as its number one problem.

During the past few years many new kinds and types of materials handling equipment have been made available for improving the handling operation. It is management's function to review its methods and to select the proper equipment for its particular handling problem. This is not as easy



1. This is one of the methods used to transport a load to a car door. Loaded pallet is positioned on small truck.

2. A pallet being loaded. Different patterns are necessary for best space utilization.

3. Here a pallet load is being removed through a car door by means of a 2,000-lb. fork truck.

4. Small pallet jack with a 2,540 lb. load of dates. The skid frame acts as a back rest.



QUINCY'S STANDARDIZED HANDLING PROCEDURE

This standardized handling procedure for use by supervisory personnel is part of the modern materials handling system installed by the Quincy Market Cold Storage and Warehouse Co., which operates nine multi-story warehouses in Boston . . . Procedures, carefully planned and followed, make for efficient operation.

PERSONNEL REQUIRED

Two laborers
Two fork truck operators
One elevator operator
One checker

EQUIPMENT REQUIRED

Two fork trucks
One four-wheel truck
One dock shelf
Pallets

as it sounds. In each instance a complete survey must be made of buildings, commodities, and operations. Familiarity with all available materials handling equipment is essential before selection of the best method and equipment is possible.

The Quincy Market Cold Storage and Warehouse Co., operating nine multi-story refrigerated warehouses in Boston, decided to see if improvements could be made in its materials handling operations, and in early 1946 made a survey of its entire warehousing operations. This survey, which took four months to complete, was made to determine the best practical method of handling in its multi-story refrigerated buildings. The method or methods had to be of

Address given at the recent American Warehousemen's Assn. meeting in Atlantic City.



THE TWELVE STEPS

- | | |
|----------------------------|---|
| Checker | 1. Break seal and records on receiving record. |
| Laborers | 2. Place dock shelf at car door. |
| First fork truck operator | 3. Haul two stacks of empty pallets, placing one on each side of open car door. |
| Laborers | 4. Place three empty pallets on dock shelf and proceed to load top pallet. |
| Checker | 5. Inspect and stamp lot number on containers while taking count. |
| First fork truck operator | 6. Remove loaded pallet to elevator, placing pallet load on elevator without running front wheels on elevator. |
| Elevator operator | 7. Run elevator to storage floor, stopping elevator three inches higher than floor level. |
| Second fork truck operator | 8. Remove pallet load from elevator and haul to place of storage and stack. |
| Laborers | 9. Follow step 4 until doorway of car is emptied, then place empty pallet in car and load. |
| First fork truck operator | 10. Run truck to open car door and remove pallet from car floor. |
| Laborers | 11. After entire car door has been emptied, 4 wheel trucks will be used. Pallet will be placed on 4 wheel truck and loaded. They will push wagon to doorway to enable fork truck operator to remove loaded pallet from truck. |
| All | 12. These steps will be repeated until car is unloaded. |

1. When only one fork truck is available, an electric pallet jack will replace second fork truck, placing loaded pallets in aisle of storage room where they will be stacked when fork truck is available.
2. When it is necessary to speed unloading of car to meet a shift or end of day, two additional men will be placed in car with second 4 wheel truck, unloading both ends of car at the same time. Fork truck will remove pallets from car and spot every other pallet load on either 4 wheel trucks or skids placed on platform, placing other pallets on elevator. After car is unloaded, laborers will push wagon loads up to storage room for fork truck to remove loaded pallets.

a nature that would conserve labor, time, and space consistent with the safety of men and with the proper preservation of perishable items stored. In order to arrive at a solution to this problem it was necessary to have the tools with which to work. This required an exact knowledge of the physical characteristics of the buildings, of the items handled, and of all available materials handling equipment on the market.

The first step in the survey was to study the physical conditions of the warehouses. No buildings were alike, so this meant studying each separately. Some were old, having wooden floors, limited size elevators, and low floor load capacities. They were built when a two wheel truck operation was considered the modern method of handling. Other buildings were much newer, with concrete floors and larger capacity elevators, and were built when four wheel wagons and skid platforms were considered the modern method of handling.

It was necessary to measure the area of every floor, spacing of columns, ceiling heights, position of overhead refrigerated pipe and doorways. The blueprints of the older buildings could not be relied upon. Over a period of years, many changes not shown on the prints had been made. Floors were tested for their load capacities. Elevators, which are a key to the problem, were checked as to size and capacity.

The second step in the survey was to analyze the commodities handled and stored. It was necessary to know the activity of every item, the quantities received and shipped, how they were received and shipped, and the methods used to protect the commodities in storage. Hundreds of containers were measured and weighed. All this information was recorded before taking the next step.

The third step was to gather information concerning the types and kinds of materials handling equipment available. Manufacturers and sales representatives of materials handling equipment were contacted to submit specifications of their equipment. Visits were made to many plants using modern materials handling equipment to find out first-hand their experience

with the equipment. After all data were gathered as to equipment, together with the knowledge of the buildings and commodities handled, the tools were available to help solve Quincy Market's materials handling problems.

The survey indicated that the present method of handling and storing abused the principle of least handling. This principle, however, was being abused only at the storage point, and any method that would curtail handling at this point would be a decided saving. The present method of handling freight from equipment, piling in storage, and again when shipped, handling from pile to equipment, could be improved by mechanical equipment. The manual handling at point of receiving or shipping by truck or car could not be eliminated, as someone would have to place the freight on whatever type of equipment was used. The addition of any type of mechanical equipment to warehouse handling operations does not entirely replace manual handling, but only supplements it and makes it easier for labor to handle more tons per man hour. No matter what type of mechanical equipment is used, there will be some manual han-

"Kold-Hold" System



This new packaged truck refrigeration unit that may be installed by the operator, manufactured by Kold-Hold Mfg. Co., Lansing, Mich., is complete and self-contained. The unit is placed over two holes in the truck floor, one for the air intake and the other for the discharge. The unit, which may be plugged in to any 110 volt outlet, will pull down truck temperature overnight.

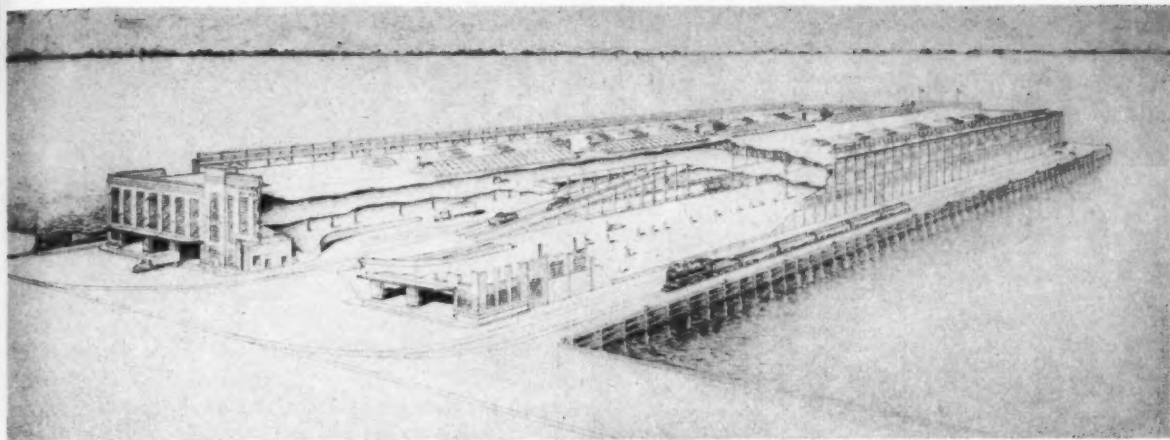
dling somewhere along the line.

There were three types of equipment that would minimize handling at the point of storage; a fork truck, a Moto-truc stacker, or a pallet jack, all using a pallet as a platform. The use of a fork truck would save approximately 80 percent of the handling in the stacking or unstacking operation. It would give a speedier method of handling and be flexible enough to be used in all types of operations. It had the disadvantage of taking up more aisle space than the other two methods, but supplemented with a pallet jack, the aisles could be kept to a minimum width by placing the last two pallets of each stack with a pallet jack.

Another method considered was the use of single face pallets and electric pallet jacks. Commodities would be stacked on the pallet to a height which would clear the lowest point (usually doors or elevator gates) from the point of receipt to the storage area. Additional storage height available would then be utilized by hand-stacking on top of the original pallet load. This permitted savings of approximately 50 percent of the handling at the storage point. This method had many advantages in low clearance rooms. Maximum loads could be carried on the elevator, and it permitted narrower aisles. Less investment in equipment and pallets was required by the use of single face pallets and the elimination of fork trucks or stackers in the operation. It had the disadvantage of being a slower method than the use of fork trucks and it did not eliminate all stacking at the storage point. Furthermore pallet jacks could not be used in buildings having wooden floors unless the main traffic areas were protected by traffic plate.

The third method considered was the use of a Moto-Truc stacker. This may be considered the in-between method. It had the advantage of being capable of operating in a narrower aisle, was not of excessive weight and could handle pallets horizontally as well as vertically. It had the disadvantage of a slow operation, the need for special type pallets, and closer supervision.

(Continued on Page 42)



Projected plans for Philadelphia's new Pier No. 80 South Delaware Wharves, showing the enclosed truck ramps for fast loading and unloading.

PROGRESSIVE PORTS

. . . this month: PHILADELPHIA

Philadelphia, "second port of the nation," handled 50,906,086 tons of freight in 1946. It plans to spend 30 million dollars as part of its Centennial project for city improvement . . . A new municipal pier will feature interior ramps for fast, efficient motor vehicle handling.

PHILADELPHIA, long cited by U. S. Army Engineers as "the second port of the nation," plans the expenditure of more than 30 million dollars over a six year period as part of its overall plan for city improvement in honor of its Centennial. The port, according to the latest available figures, had its best year in history in 1946, handling 50,906,086 tons. It is an outstanding distribution point because, its proponents contend, more ready-made cargoes are available to its waterfront than to that of any other port in America, since it is located in the greatest production area of the nation.

Lighterage is unnecessary in the harbor, and 191 piers and wharves, exclusive of small bulkheads and

landings, 99 of which are equipped with railroad tracks, are available for handling merchandise quickly and efficiently. Within the city, including the municipal airport and the proposed marine terminal on Hog Island, there is a frontage of over 39 miles on the Delaware and Schuylkill Rivers. Berthing space at local piers totals 159,000 ft. All railroad tracks on piers and wharves, of which there are 242 in the city, connect with the Philadelphia Belt Line circling the waterfront, and then link with three of the country's outstanding trunk lines—the Pennsylvania, the Reading and the Baltimore and Ohio.

In the city alone, a tremendous pier area of 18 million square feet, six million of which are on shedded piers, offers excellent

facilities. Two grain elevators have a capacity of 4,725,000 bu.; two coal tipples can handle 100,000 tons per day; two fully-equipped ore unloading piers are available. Pier, wharf and floating derricks with capacities up to 100 tons help loading and unloading operations.

For the warehousing of goods ready to be shipped or just received, Philadelphia has 48 warehouses adjacent to the waterfronts. They have a capacity of 6,700,000 sq. ft. or about 76 million cubic feet for storage.

The country's largest shipyards, including the famous Philadelphia Navy Yard, with the largest drydock in the world, are located along the Delaware River, as are other yards with drydocks.

(Continued on Page 67)

THE RAILROADS' ROLE IN PACKAGING

Everyone suffers from damaged merchandise and freight claims—shipper, receiver, carrier . . . The Southern Pacific offers its shippers the services of a container engineer and several transportation inspectors to help solve packaging problems.



By EUGENE H. SCHMITT

*Container Engineer
Southern Pacific Co.*

GRADUATE in engineering, University of Michigan, and the Milwaukee School of Engineering, Mr. Schmitt has served as chief engineer and chief packing engineer with various industrial concerns in the Middle West. During the war he was with the U. S. Army Engineers as associate engineer in charge of packaging at various plants in the Milwaukee area. He was appointed container engineer, Southern Pacific Co., in 1947.

NO one wants freight claims. Shippers and receivers are interested in the use and sale of their products and commodities—neither wants the inconvenience, delay and expense of filing freight claims, or making replacement or repairs.

Our management is seriously concerned over the loss and damage problem and is doing everything possible throughout our entire organization to educate employees and to correct improper practices.

Carriers recognize their own faults, but when damage results from inadequate containers or loading methods, the assistance of shippers and receivers must be enlisted. The Southern Pacific

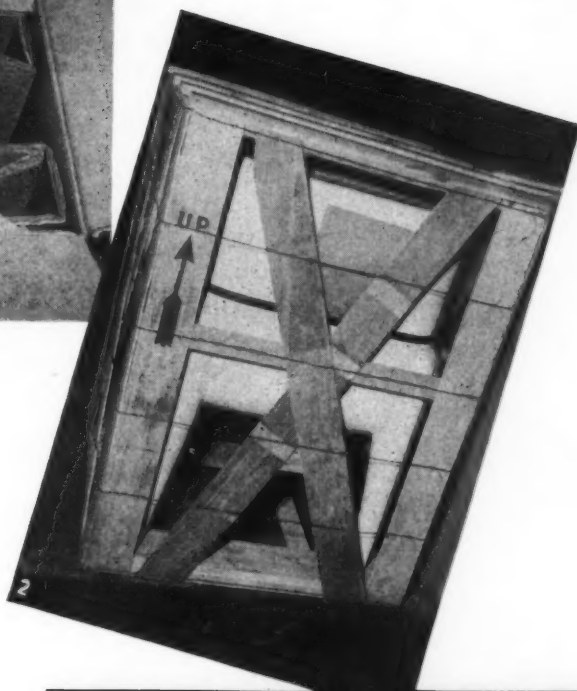
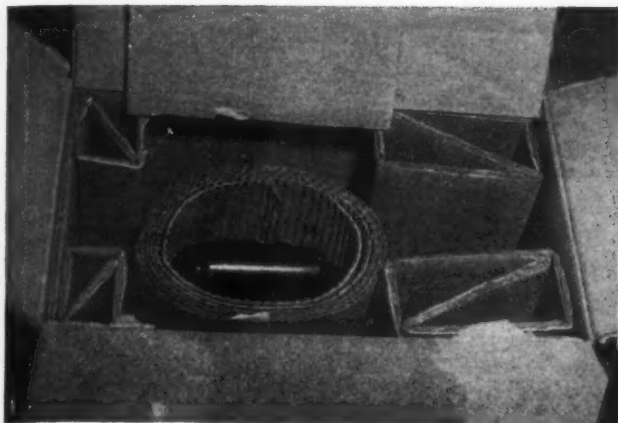
offers patrons the services of a container engineer and several transportation inspectors to work with shippers in solving particular packaging or loading problems.

Every packaging job must begin with an evaluation of the shipping, handling, and merchandising hazards the package must withstand. Cost of packaging should be kept to the lowest practical figure, and outer design of the package should be attractive and distinctive with eye and sales appeal. When these steps are completed, we are ready to build a packaging structure that we believe will accomplish successful shipment.

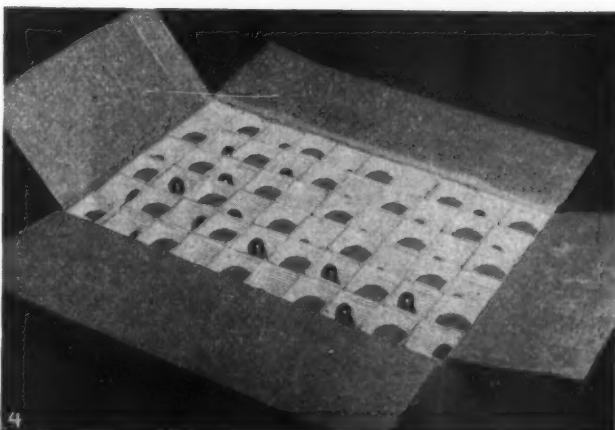
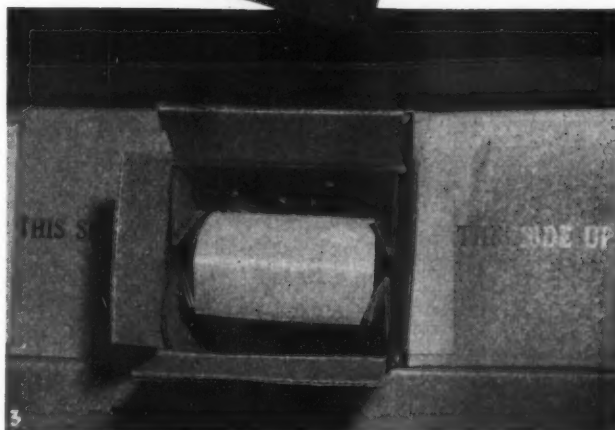
Experience shows that the character of the forces at work on an

article within a container are much the same for small articles as for large. The main difference seems to be the size of the force rather than the kind. But large or small, heavy or light, we will want to know early in the planning stage whether our article will stand any shock. Articles are subject to many different forces and these forces are of variable intensity and direction. In each case, the mechanical problem present is to bring the moving body to a sudden stop without damage.

Articles that are anchored or blocked and braced within a container are subject to shock. However, in planning these packs it is possible to modify shocks in countless ways in order to bring them



1. Use of rat trap pads for positioning electric motor in carton.
2. Method of holding article in container by means of bolts through base.
3. Adaptation of spring pad to protect electric clock.
4. Use of corrugated paper to absorb shock and protect fragile articles.



within the ability of the article to withstand the shock.

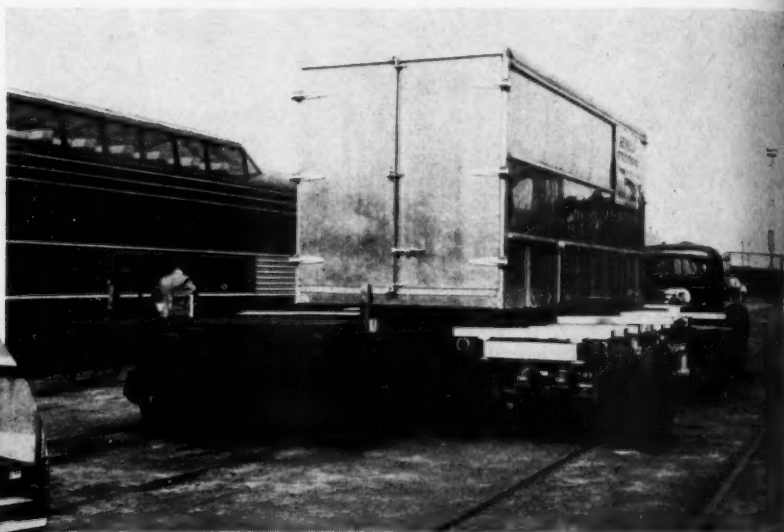
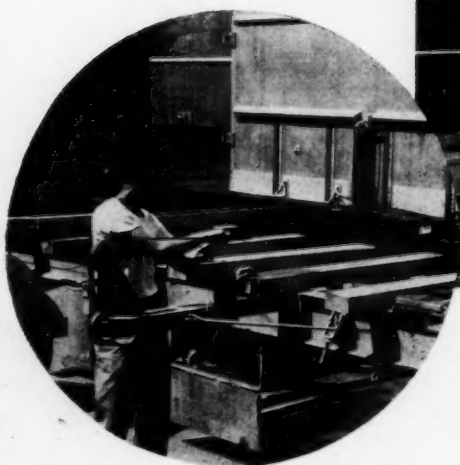
In the case of the anchored, or, as some may call it, "floated load," where the article is attached to the container or to a skid or mounting frame, the shocks may be modified by using a semi-rigid container such as the wirebound box. This type container will weave and distribute the forces through the container structure.

In the case of a load mounted to a frame or plywood panel, this may be suspended within a corrugated container on double-wall folded sheets which press the support panel firmly to the end of the container. Here, shocks are modified by the tendency of the pressure sheets to distribute forces

(Continued on Page 75)

TRAILERAIL

- To lessen handling expense
- To cut loss and damage
- To shorten time in transit
- To increase volume of traffic



IT HAS LONG been the railroads' contention that l.c.l. freight is being handled at a loss, because of high freight house and transfer expense, light loading of cars, high ratio of loss and damage, and expensive switching and train service. Profitable handling of this less-than-carload freight is a problem, say railroad men.

One possible factor in the long fight to reduce l.c.l. handling expense may be the Trailerail, an aluminum detachable trailer body, 20 by 8 by 8 ft., developed by Reynolds Metals Co. Made of tough aluminum alloy and of riveted construction throughout, the new container has a capacity of about 1,000 cu. ft. or 20,000 lb. of freight.

The Trailerail is mounted on a carriage which can be retracted or expanded by manually operated hydraulic rams, permitting the

container to be driven alongside any flat car or platform and rolled from truck to car or platform and vice versa. One man can make the switch in a few minutes.

Advantages gained by use of large freight containers accrue from the fact that freight is handled only once. Once packed cargo need not again be touched until it reaches its destination. The new Trailerail can be picked up by a truck at the shipper's dock, transferred to a flat car, transported many hundreds of miles to its destined rail terminal, re-transferred to a truck, and delivered to its final destination.

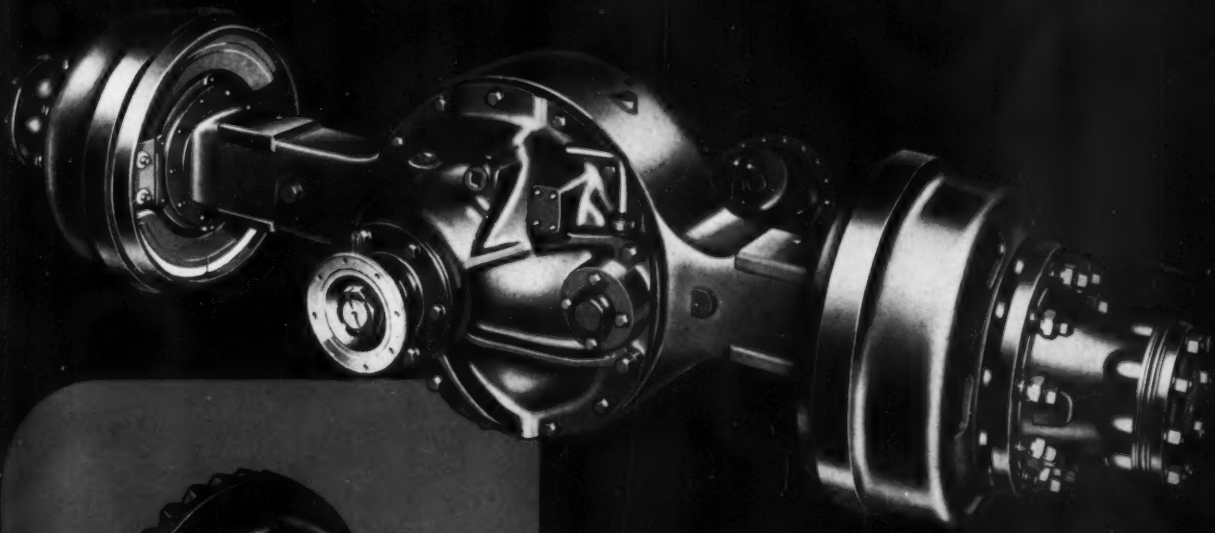
In the Interstate Commerce Commission's study, "Increased Less-Carload Rates, Official Territory," it is clearly brought out that the greater part of the terminal expense of l.c.l. freight transportation and nearly 50 percent of the line-haul expense ob-

tain from handling the freight across the platforms of freight houses and transfer points.

The consolidation of l.c.l. shipments would result in more business for the rail carriers because of the improvement of the service. ICC statistics show that only 41.4 percent of the railroads' share of total l.c.l. traffic actually moved by rail in 1944 as compared with 1928. Moreover, Assn. of American Railroads figures for 1946 show that nearly one-third of the total loss and damage payments of \$94,300,672 were made on l.c.l. shipments, although they comprised only two percent of total rail tonnage.

Use of containers, such as the Trailerail should result in lowering costs, speeding shipments and improving service. However, their use must be coupled with efficient pick up and delivery schedules, as well as prompt rail movements.

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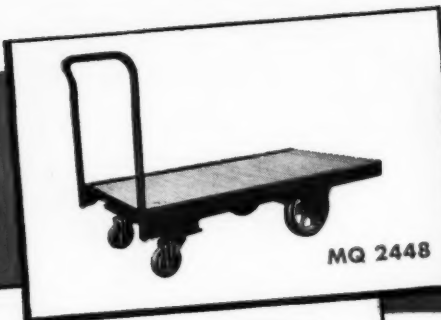
With 4 gears to transfer power, the rugged planetary system in the Eaton 2-Speed Truck Axle provides far greater gear tooth contact. Tooth-loads are distributed, and the load on the teeth is held to a minimum. Direct advantages of this design are reduced wear, longer axle life, and minimum upkeep. Outstanding performance records are proof of Eaton quality and design. See your truck dealer for complete information about Eaton 2-Speed Truck Axles.

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EATON MANUFACTURING COMPANY

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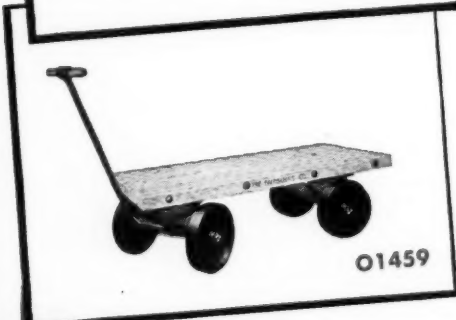
MQ 2448



S2742A



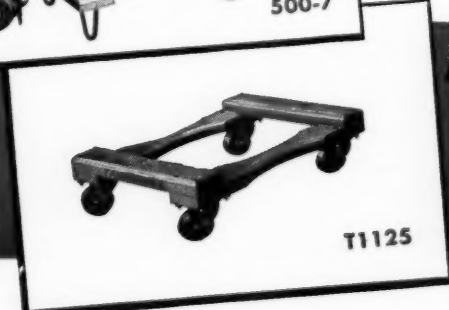
S4681



O1459



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MQ 2448. Commander Steel Frame Platform Truck. Hardwood platforms securely bolted between heavy angle irons; ends and sides armored to assure long life. Heavy duty, double ball bearing, semi-steel casters provide easy rolling and steering. Sizes 24" x 48" to 36" x 72".

S2742A. Commander Steel Frame Platform Truck. Identical in general construction features with the Q type truck, but is Tilting or Center Balance Type for quick turning in small space, around sharp corners, etc. Turns in its own length, pushes from either end. Sizes 27" x 42" to 30" x 60".

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T1125. A rugged wooden frame dolly with side bars shaped to conform to the hand. Four ball bearing swivel casters. For quick, easy handling of refrigerators, furniture, boxes, long cases.

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48961

DISTRIBUTION AGE

Materials Handling Bonuses

In addition to the many substantial — often spectacular—economies resulting directly from mechanized handling, there are many secondary benefits which should not be overlooked by management.



By MATTHEW W. POTTS
Materials Handling Consultant

MANY executives these days are discussing in conferences and at association meetings, the possibilities of obtaining a reduction in taxes. They are figuring out ways of reducing capital investments, properly allocating expense items, and increasing profits through other methods of accounting. But frequently these same executives overlook the tremendous savings that can be effected by properly studying materials handling methods and installing the equipment to reduce their handling costs.

It is a well-known fact that proper materials handling will save a considerable portion of the production and distribution dollar. However, in most instances studies only allow the materials handling engineer to apply direct labor savings (so-called) toward the cost of the installation in order to justify the expenditure of money required for such installation. Even with this system of accounting and method of setting up the survey so as to justify the purchase of the equipment, it has been proved in the majority of instances that the expenditure of money to make for better materials handling methods and proper equipment can justify itself in savings so as to be completely wiped out in from one month to a year and a half. Usually if this saving cannot be so shown, the equipment is not purchased and the installation is not made.

In attempting to justify the expenditure of money, sometimes no

thought is given to the *intangible* savings which can be made, which frequently far exceed the possible savings due to reduced labor expense. Many of these factors are not even given consideration by management in developing a materials handling survey. In the majority of cases, these savings are not credited to the new materials handling methods and equipment when installations are made.

Now is the time to consider these so-called intangibles, as they furnish a bonus far in excess of what could be obtained by tax reductions, maintenance of the present hourly wage scale, development of production techniques, etc.

What are a few of these intangibles? What have we been overlooking in setting up the savings effected by better materials handling methods?

Safety in Materials Handling

Materials handling designers and builders, besides reducing the manual handling operations of industry and saving it money, have built into their machines many safety factors which reduce the numerous hazards attendant on manual handling. This was the theme of a recent talk by E. D. Farrell, district representative, The Yale & Towne Mfg. Co., before the Western New York Safety Conference. Mr. Farrell described the safety engineering features that have been built into handling equipment, concentrating for emphasis on the high lift fork truck. Stability and balance, he said, are of first importance to the designer. Other features that increase safety of the operator of the truck are specially designed forks, mechanical throwouts which prevent raising or lowering or tilting too far, extra strength hoist units, safety color paints, etc.

1. Mechanized handling automatically permits better utilization of floor space in warehouses, and definitely permits, in the majority of instances, a better utilization of the cubical content of a warehouse for storage area. This alone sometimes makes it possible to store more materials quicker and easier, and eliminates the necessity of building expansion in order to accommodate such storage. With building costs at their present level this can be a very important factor.

2. The installation of materials handling equipment generally effects the methods of storing and handling, which results in better housekeeping, cleanliness and orderliness.

3. With better housekeeping and a more orderly method of storing, especially if unit loads are a part of the new handling system, it is possible to take inventory more quickly, and to uncover hidden merchandise which has become lost due to haphazard handling. By reducing the cost of taking inventory, considerable expense is saved, and physical inventories can be taken more frequently, which is also beneficial in reducing losses and for moving older materials first.

4. When good materials handling equipment and methods are used, it is possible to re-warehouse or ship stored materials quickly in order to take care of additional items or seasonal purchases. This allows the purchasing department to take advantage of good buys,

because they can be quickly warehoused without excessive expense. The same is true for making quick changes in production layouts in order to effect savings in production operations. These layouts would be too expensive to make at frequent intervals if mechanical means were not available for moving machines, materials, etc.

5. In warehousing and in storage, there is always a possible hazard of water damage due to broken sprinkler lines, sewer pipes, etc. If materials are stored on pallets or skids, this damage is reduced, and in most cases eliminated, because of the clearance under the loads. They are kept 6 in. or more off the floor.

6. By having materials in unit loads on skids or pallets, it is possible to make quick movements of materials in case of fire or major flood damage. In a number of instances, industrial plants have saved their entire stock from major catastrophes by being able to move it quickly with their mechanized handling equipment. Some of these movements have been so spectacular that they have been published in the daily newspapers in that area and syndicated through the large metropolitan dailies.

7. Proper materials handling automatically makes for better working conditions and reduces

the fatigue of the men performing the operation by permitting them to move heavy loads with a minimum of effort.

8. These better working conditions make for a smaller labor turnover, thereby reducing the number of records and the cost of interviewing and hiring help. Also, by having a permanent crew, work is done more efficiently than when constant new trainees are used.

9. All the above have a direct effect on safety, because better housekeeping, better utilization of floor space, protection from flood and fire, reduction of manual handling, elimination of handling heavy loads and resultant strains, make for a safer plant, and reduced accidents mean reduced insurance rates.

10. By using mechanical equipment, it is possible to perform work quicker and more efficiently on a wide variety of operations, for example, the loading and unloading of trucks, cars, etc. It has been definitely proved that proper materials handling methods not only save time and money on the actual handling (which is credited to the purchase of the equipment), but also save considerable idle truck time, demurrage on cars, etc.

11. It is a well-known fact that where good materials handling methods and equipment are employed, there is less damage to

materials in transit and between operations, and thus waste and spoilage are reduced.

12. Proper materials handling affects production control, thereby making it possible to expedite shipments, to route materials through production operations, and to move materials quickly on special rush jobs.

13. Materials handling principles, such as overhead conveyors, apron conveyors, etc., are employed as a definite part of production machinery on multiple operations, but as soon as materials handling equipment is put into a production operation, it is considered a piece of production equipment, and the savings are not credited to materials handling. A great many of our production units, such as bottle washers, fillers, cappers for the beverage and milk industries, etc., cleaning machines, painting units, have been made possible by the employment of materials handling principles and equipment. When these are purchased as a unit, then they are classed as production equipment, but in many instances short sections of conveyors are placed between existing production machines, and the savings effected by the use of these materials handling principles are entirely overlooked.

14. The use of this equipment results in better production layouts, making it possible to increase the output of production machinery and to conserve production space, frequently resulting in an increase in production in the same building area, thereby eliminating the necessity of a building expansion program in order to take care of increased production.

15. Materials handling techniques definitely increase the productivity per man hour.

16. Materials handling techniques definitely increase the production per machine hour.

The above are only a few of the many intangibles that should be credited to a proper materials handling installation, and if they will be taken into consideration as savings, the executive can have his bonus over and above the savings now attributed to materials handling.

Second Highway Transportation Congress

THE continuing need for some sort of standardization of the existing state regulations on size and weight of motor vehicles and the problem of the diversion of highway tax monies to non-highway uses were two of the topics most discussed at the Second Highway Transportation Congress of the National Highway Users Conference, Hotel Mayflower, Washington, May 6 and 7. L. C. Allman, vice president, Fruehauf Trailer Co., in discussing state regulation of highways, posed the question, "Isn't it time, in all states, to make a scientific rather than political approach to the subject of size-and-weight allowances for commercial vehicles?" He said that highway engineers know our roads will carry heavier gross loads, if properly distributed, than are now permitted. Our national transportation plant, costing 32 billion dollars, is "operating at an efficiency of probably not more than 50 percent," he stated. He urged the arriving at a reasonable "par for the course" of our highways, throughout all the nation.

Other speakers maintained that restrictive state regulations hinder the farmer from reaching important markets for his produce, and prevent the manufacturer from making

maximum use of his production in distribution. Also seen as needs for the nation's highway system were the proposed interstate highway system of highly improved roads linking the nation's 92 principal cities, the need for promotion of reasonable reciprocity laws and closer relationship among the states, the District of Columbia, Canada, Mexico and other American countries; the easing of the tax burden of the for-hire carrier, which is often many times his rightful share; the planning of intelligent facilities for easing truck traffic congestion, rather than indiscriminate building of super-highways barred to trucks; the building of limited-access roads as a partial answer to the traffic needs of big cities; and the ending of the diversion of highway tax funds to non-highway uses, which last year reached a total of some 2.3 billion dollars. Baird H. Markham, director of the American Petroleum Industries Committee, who spoke on this last subject, also warned congress members that "dispersion," the practice of spending road monies without proper controls, indiscriminately for local as well as state roads, is robbing the people of millions of dollars of their highway tax money.

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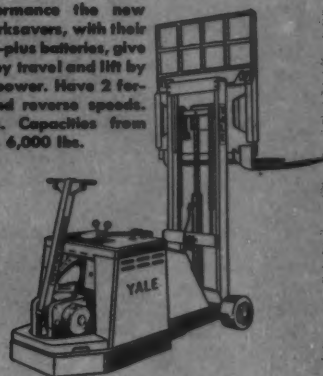
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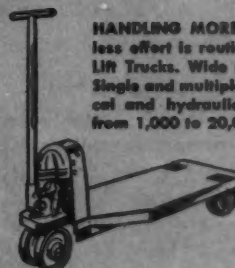
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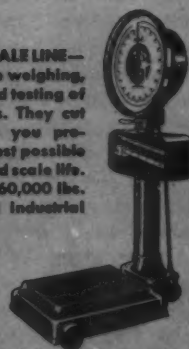
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YALE OFFERS NEW SCALE LINE—The Load Kings, for the weighing, counting, batching and testing of all kinds of materials. They cut weighing time, give you prolonged accuracy, lowest possible maintenance, increased scale life. With capacities up to 60,000 lbs. Yale Scales meet all industrial needs.





The Aircargo Rate Muddle

A discussion of the competitive pressures leading to the recent CAB ruling which prescribes "lawful minimum rates for the transportation of freight by air."

By JOHN H. FREDERICK, *Aircargo Consultant*

ON April 22nd the Civil Aeronautics Board issued an order prescribing "lawful minimum rates for the transportation of freight by air." This was the culmination of a lengthy investigation and hearing on air cargo rates now in effect and certain proposed rates which the Board had suspended in October, 1947. In order to understand what lead up to this Board action it is necessary to go back into recent air transport history.

With the beginning of real air cargo transportation, in the months immediately following the end of the war, even the certificated airlines didn't know very much about air cargo except that it had never existed as a business separate from passengers and mail. It was also admitted that the rates for air express were too high to attract much in the way of real volume.

In other words, there was a "parcel" but not a "freight" business carried on by the airlines.

Contract and non-scheduled air cargo carriers began to develop and there was considerable experimentation with rates on their part. Very little of this experimentation was planned, most of it was dictated by force of circumstances—chiefly competition. There was no uniformity either among these newer cargo carriers or between one carrier and its shippers. Many rates were made as a result of bargaining between carrier and shipper and were dictated, more frequently than not, by the competition of the one-plane veteran operators who were consistently carrying loads at whatever the traffic would bear. The situation was chaotic and as one looks back on it, probably inevitable.

The Board took a step to bring

some order out of chaos when it required the registration of non-certificated carriers and the filing of tariffs, not only by the cargo lines but also by their irregular competitors. Up to this time the only cargo tariffs filed had been those of the certificated airlines. The basic principle apparently underlying the cargo tariffs filed by the non-certificated operators in the summer and early fall of 1947 was that their rates should, in order to develop traffic, and could, because of savings in operating and other costs, offer air cargo service at substantially less than the certificated airlines could afford to charge. Some of the certificated airlines have taken the position that these tariffs represented an "under-cutting" or a rate-war "salvo" by the cargo operators since they presented

(Continued on Page 49)

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PAN AMERICAN
WORLD AIRWAYS





Several of a fleet of trucks operated by Miller's Groceteria Co., Denver. Truck costing on fleets such as this can result in noticeable savings.

TRUCK COSTING

Many industrialists pay little attention to truck transportation costing, assuming it a negligible expense . . . But through adequate, though not exhaustive, truck costing, substantial savings can be made in distribution.

By FRED MERISH *Special Correspondent*

MOTOR transportation companies are more careful about costing their trucks than industrialists; in fact, many top executives in industrial organizations pay little attention to the cost of truck transportation, assuming that loss-leaks are negligible. But surveys have shown that they run into substantial sums annually and add considerably to the cost of distribution.

One reason for this variance in cost control between trucking and non-trucking companies is that trucks are the main tools of commercial carriers, whereas industrial managements consider them only an auxiliary to the more important processing devices, they assume that the big outlay for production cost offers big opportunities for savings, while truck transportation offers only limited economies because it is just an

auxiliary service. Then too, the cost of truck transportation is a factor in determining truck company rates, and unless their truck costs are rigidly controlled, these carriers cannot make a profit from the rates charged, nor can they make policy decisions or expand their facilities intelligently, or offer their customers the best service at the lowest cost. The industrialist does not need this information, and to him truck costing seems of minor importance. In many cases, he feels that the financial accounts give enough information on truck costs to keep them under control, but these records reveal only the dates and the amounts of the bills paid and the total truck cost in ratio to sales; they do not show how wisely the money was spent.

The financial accounts show how much was paid for gas, oil,

insurance, licenses and other truck expense, but they do not show the operating cost per mile, the cost per hundredweight or hour, the comparative costs per truck, the costs of one make of truck against the costs of another make. Management needs these figures to determine whether it is getting maximum efficiency for the money spent. The following counsel applies with equal force to the user of one truck or a fleet.

Cost accounting is not hard to apply to trucks. The basic formula is simple. It cannot be done by using financial accounting forms, such as ledger or journal sheets. Special forms should be prepared, either typed or printed. Each truck should be costed separately so that comparative costs can be analyzed and corrective action taken where needed. Costs can be grouped for trucks of like

Truck costs are of two different kinds: fixed and variable, the former comprising depreciation, garage rent, insurance, truck super-

location should be made accordingly. A big tank truck, obviously, would be charged with more garage space than a light pick-up job. If a company rents space in a private garage and is billed for each truck separately, then the charge can be made direct without allocation. If the trucks are kept in a company garage, supervision

(Continued on Page 74)

Use both sides of card, about 6 by 8 inches, either printed or typed. Make out separate card for each truck. Adjust heads to suit requirements. Unit load or load unit may be ton, 100 pounds, package or any other unit by means of which costs can be accurately measured.

[illegible]

MULTI-STORY WAREHOUSE

(Continued from Page 28)

The three methods were further explored and it was decided to adopt the fork truck method, supplemented with the use of pallet jacks.

A palletized method would give regulated air circulation spaces in stacks for better preservation of the commodities stored. Less damage would occur to containers because of fewer handlings. It would permit an easier and more rapid inventory and a quicker and more economical method of relocating commodities in order to gain space. It would decrease the quantities that could be stored in freezer rooms by eight to 10 percent for reasons of the need of wider aisles and the space taken up by the thickness of the pallets. However, if commodities are active, this loss could be regained by fast relocation and consolidation. In cooler rooms having higher ceiling heights, no overall space would be lost since the entire cube would now be utilized fully.

At one warehouse it was not recommended that a palletized method be used, since the nature of the item stored and the method used to freeze it prevented an efficient use of this method of operation.

At another warehouse, one used primarily for the storage of case eggs, a palletized method would show a considerable saving in handling costs. However, since the entire cube and square footage of storage space of the building was needed for this long term item, the loss in storage revenue would be greater than the savings in handling. It was decided to wait before palletizing this warehouse in the hope that additional space might be available or new ideas might be found to eliminate the loss in space occasioned by the use of pallets.

It was now time to select the equipment to be used in the warehouses recommended for a palletized method.

The use of gasoline equipment was not feasible because the fumes

were harmful to the perishable products and to the men working in the closed storage areas. Electric equipment being much heavier than gasoline equipment made weight a factor to be considered. Elevators with capacities not greater than 4,000 lb. limited the size of fork truck to be used. Since a 2,000 lb. capacity fork truck weighs 5,000 lb. it was necessary to find a lighter truck. This lighter equipment was available but the standard capacity of the truck was limited to 1,000 lb. With a few changes, it was possible to increase the capacity to 1,320 lb. and still have an overall truck weight of 3,000 lb. This truck, with 36 in. forks, would maneuver in an eight-foot aisle. Its overall length did not exceed the depths of the elevators; therefore, a fast transfer of trucks from floor to floor could be made when needed. The standard mast height of 83 in. could be cut to 65 in. to allow for low clearances in doorways without penalizing lifting height to any great degree.

The limitation of the fork truck capacity to 1,320 lb. was the important factor in determining the size pallet that could be used. It had to be a small one, so a standard 32 x 40 pallet was considered. The many items that had been measured were now fitted to this size pallet and patterns ascertained. The width of this size pallet would permit fast removal through narrow reefer car doors. It was now necessary to fit this size pallet to the storage areas. Layouts were made of each storage area and it was found that a 32 x 36 size pallet would fit better than a 32 x 40 pallet. This size pallet would still permit the same patterns and weight of 1,300 lb. to be used.

The present layout of stacking at right angles to the main aisle would not permit the best utilization of space when using pallets, due to the various spacings between columns. This obstacle was overcome by changing the direc-

tion of storage so that it was parallel to the main aisle. Single pallet loads could then be placed between columns facing the main aisle, which provided storage space for small lots. Rows of stacks were made of various lengths to allow for different size lots.

With the equipment chosen to fit the building, it was now necessary to find out how it would fit into the operations. Improperly used equipment can cause more waste and hamper operations to a greater extent than failure to use it at all. Present operations were analyzed, timed, and balanced to discover where the new equipment would be most effective. Procedures were then written to cover every operation, and variations were inserted to take care of every known circumstance.

The results of the survey were submitted, and it was decided that a palletized method of handling and storage would be installed where recommended. It was further decided that this change would not be made in all buildings at once, but made slowly in order to gain experience, take advantage of new inventions that might come along, and indoctrinate and train present personnel. The project was planned so that it would take five years before the new method would be installed in all buildings to which it was adapted. Compared with hand stacking, it appeared that a palletized method of storage in a multi-story refrigerated warehouse with limited ceiling clearances would decrease the amounts that could be stored in any given area. The advantages of such a method would be faster service to the customer, better protection for the items stored, flexibility, and lower cost of rewarehousing, permitting better overall utilization of space. These advantages would outweigh the disadvantage of lost space, which is an important factor only when space is critical.

The first warehouse to be started was a freezer building with wooden floors. The method used was electric pallet jacks transporting pallet loads from car to storage. No fork trucks were used. The additional cube was hand

(Continued on Page 52)

BAKER FORK TRUCK



BAKER ARTICULATED FORK TRUCK



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In more and more plants, management is finding the right answer to its material handling problem by using Battery Electric Trucks. Time is being saved—more tons per man, per hour. Handling costs have been cut as much as 50%. More storage space is being utilized by high tiering. All combine to effect substantial savings that help to offset increased manufacturing costs.

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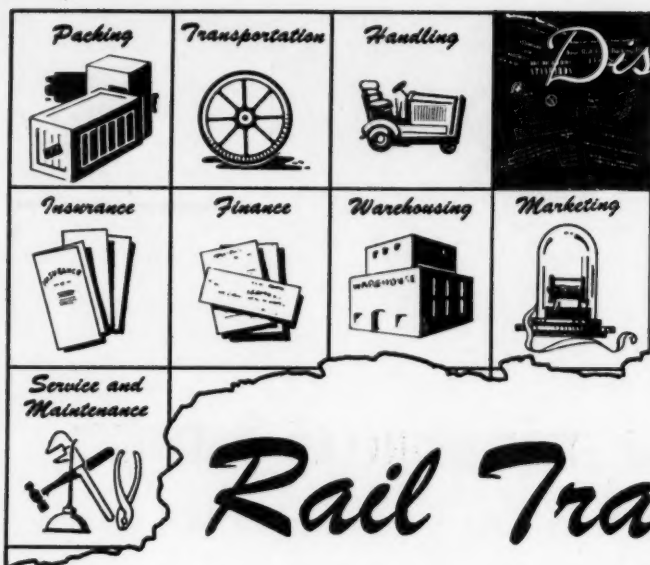
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Distribution STANDARDS and SPECIFICATIONS

Rail Transportation

Economic pressure, government aid, and the railroad associations were the three underlying forces responsible for the development of the amazingly complex system of standards in the railroading industry . . . Uniform standards at those points where the roads connect with other carriers and other distributive activities will make for more economical and efficient distribution.

By BENJAMIN MELNITSKY

EXACTLY 111 years ago an English engineer, after having examined the infant American railroads, wrote that "there are hardly two railways in the United States which are made exactly in the same way." The perspicacious Britisher was absolutely correct; in fact, he didn't go far enough. Not only were there

no two lines that were even slightly similar, there was no single line which was the same along its entire length. An 1837 hobo—a pioneer in his own right—on walking the rails would have seen below his feet an amazing welter of construction methods. Within a day's travel, he might very well traverse tracks made

from lengths of granite laid end to end and protected on the inner edges by plate rail, or iron rails bolted to granite ties, or any one of many other construction methods used in those days of trial and error railroad building.

Design of rails varied as did distance between parallel rails. The present standard track gauge

Tremendous Trifles

"A CHAIN is as strong as its weakest link." This time-worn, yet apropos analogy can be applied to distribution. Although the analogy is unquestionably apt and correct, it can not be demonstrated readily other than in a negative sort of way. A railroad strike which weakens transportation, weakens as well marketing, materials handling, packaging, warehousing, and all the other links in the chain of distribution.

To prove the statement positively is a little more difficult. When railroading is strengthened by the imposition of standards, the effect on distribution as a whole is not always apparent. An AAR standard for freight car axles results in more efficient use of railroad rolling stock. The new axle means fewer repairs, longer service for the part and the freight car, quicker replacement when the part fails in service,

and other benefits. The effect of this one standard on, let us say, insurance, is rather difficult to demonstrate. However, though the connection is a tenuous one, it does exist. The standard axles, together with other standard parts, eventually means safer and longer-lasting cars. The improved vehicle does result in eventually lowered insurance costs due to fewer accidents and less damage to goods carried in the car.

Yet, in talking of efficiency in distribution, it is these minor standards that present the means for attaining more things for more people through better distribution. This then is the true significance of the many technical standards and specifications developed by the American railroads. Each standard, by its action in increasing the efficiency of railroads, serves to increase as well the efficiency of distribution as a whole.

AAR standards controlling the loading, handling, and packaging of commodities to be shipped via railroads have a more direct relation to other phases of distribution. Obviously, such standards result in faster and easier materials handling at shipper's and receiver's plants, result in less damage to goods during handling and in transit, result in lower insurance costs, better warehousing, etc.

Thus, remote or immediate as its effect on distribution may be, each of the many thousand railroad standards does in the long run contribute to greater efficiency. The progress in standardization demonstrated by the railroads points the way to truly efficient and economical distribution. Standards are, in truth, "tremendous trifles" which like "drops of rain and grains of sand, make the mighty ocean and the pleasant land."—B. M.

of 4 ft. 8½ in. was not adopted officially until after the Civil War. As late as 1851 the New York and Erie Railroad was constructed with a remarkable six foot gauge which was selected in order to discourage the interchange of tariff with competing lines. Needless to say, rolling stock and other phases of pioneer railroading were as non-standard as designs in a kaleidoscope. Indeed, the growth of the rail industry was accomplished with a maximum of *laissez faire* and a minimum of standardization.

Today, however, the railroad industry operates under the guidance of an amazingly complex system of standards and specifications, a system which is incomparable in its scope. As in the automotive industry, railroad standards control materials and component parts; as in the highway transportation industry, rail standards regulate rates and nature of service; as in the electrical industry, rail standards guide in product design and in safety. However, unlike these and other American industries, the railroads continue to employ standards where others leave off. Nowhere else is there such a blanket use of standards and specifications. From track to train, from signalling devices to operating procedures, from accounting practices to freight rate classifications, from beginning to end, the railroads function under the guiding hand of standardization.

Because of standards the many competing rail lines function smoothly as an integrated national transportation system. Freight cars owned by west coast lines may carry canned goods to the South, may be loaded with textiles at Atlanta for shipment to New York, may be repaired in a Pennsylvania RR. repair shop, and may return loaded to the west coast by way of Canada, Mexico, or some other route. Wheels, axles, couplings, and other working parts of the freight car can be repaired or replaced with new parts anywhere in the North American continent because the parts are standard both in design and in construction. Although freight cars do have many non-standard parts, the trend is toward truly stand-



CHECK LIST OF RAILROAD STANDARDS

Association of American Railroads, Loading and Container Section,
59 East Van Buren Street, Chicago 5, Illinois.

101 The "A, B, C" of Good Crating	\$.08
102 A Guide to Good Construction of Nailed Wooden Boxes .....	.10
104 Packing of Small Articles of Furniture in Corrugated Fibreboard Boxes .....	.10
105 Wrapping, Tying and Bundling of Chairs .....	.06
106 Crates for Upholstered Furniture .....	.05

CLOSED CARLOADING PAMPHLETS

Set of Closed Carloading Pamphlets as Listed Below	\$1.50
1 Automobiles, Trucks and Trailers in Closed Cars .....	.08
3 Bags—Commodities In—Flour and Other Grain Products, Sugar and Kindred Commodities, Rice, Salt, Coffee, Beans, Peanuts, etc. ....	.10
4 Barrels, Drums or Kegs .....	.10
5 Batteries—Storage .....	.05
6 Brick and Hollow Building Tile .....	.10
7 Brick—Hot Top .....	.10
8 Butter in Tubs in Refrigerator Cars .....	.06
9 Cable and Similar Commodities on Reels .....	.10
10 Car Doors—Battening as Protection Against Damage by Weather, Cinders, etc. ....	.05
11 Car Wheels—Loose .....	.05
12 Cylinders—Empty, With or Without Caps .....	.10
13 Fibreboard Container (Solid or Corrugated)—Commodities in .....	.10
14 Freight—Loading, Bracing and Blocking of .....	.15
15 Furniture—Carload .....	.10
16 Furniture—Less-Carload .....	.05
17 Grain and Grain Products in Fibreboard Containers and Sacks .....	.10
18 Ink and Like Commodities in Six-Gallon Steel Pails and Similar Containers .....	.05
19 Livestock—Loading and Handling .....	.06
20 Lumber (Dressed) and Mill Work .....	.08
21 Machinery .....	.10
22 Marble in Slabs—"A" Frame Method .....	.05
24 Mixed Loads of Commodities in Wooden Cases, Cartons, Drums, Barrels or Pails .....	.06
25 Paper and Similar Commodities on Skids .....	.10
26 Plasterboard, Wallboard and Lath of Similar Composition—Either in Solid Loads, or with Bagged Commodities as Mixed Loads .....	.08
28 Radiators—Cast Iron .....	.06
29 Refrigerators—Mechanical .....	.10
30 Roofing Materials—Prepared .....	.10
31 Soda Ash .....	.06
32 Stones—Pulp Grinder .....	.05
33 Stoves and Ranges .....	.08
34 Tank Cars Transporting Non-Dangerous Commodities .....	.05

Continued on Page 46

✓ CHECK-LIST OF RAILROAD STANDARDS

Continued from Page 45

35 Untreated Cross Ties .....	.02
36 Bulk Grain .....	.06
37 Pig Lead, Copper Bars and Similar Commodities .....	.10
38 Unsaturated Roofing Felt and Pulpboard Paper .....	.10
39 Newsprint .....	.10
40 Vitrified Clay Sewer Pipe .....	.15
41 Dictionary of Standard Terms for Use in Describing Loading and Bracing Methods for Shipments of Commodities in Closed Cars .....	.05
42B General Rules—Closed Cars, to Accompany Foregoing Loading Pamphlets .....	.05

GENERAL INFORMATION SERIES

501 Methods for Holding Box Car Doors in Partly Opened Position to Provide Ventilation	\$1.50 per 100
502 Progress Report No. 1 on Glued Loads	2.00 per 100
503 Bracing Partial Loads of Fresh Fruits and Vegetables after Car has been Partly Unloaded at Stop-off Point in Transit	1.00 per 100
504 Temporary Partial Layer Brace	1.50 per 100
505 Recommended Method Packing Metal Utility Cabinets in Double-Faced Corrugated Fibreboard Containers	1.50 per 100
506 Progress Report on Glued Unit Loading System	5.00 per 100
507 Recommended Method for Packing and Crating Metal Sink Cabinets	4.00 per 100
508 Method of Constructing and Opening the 3-Way Corner ..	2.00 per 100
509 Retaining Paper Method of Utilized Loading	2.00 per 100
510 Type B Center Gate for Apple Box Load	1.00 per 100

FOB CONTAINER BULLETINS

1 Cans (Inside Containers) For Liquids, Semi-Liquids and Pastes	\$.05
5 Crates for Parlor Heaters (Circulating Type)10
7 Packing and Crating Oak Heaters05
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11 Crates for Furniture (Case Goods Without Stretchers)10
12 Crates for Furniture (Case Goods With Stretchers)10
19 Crating and Packing Commercial Store Fixtures .....	.10
23 Crates for Soda Fountains .....	.10
26 Crates for Enameled-Iron Sanitary Enamel Ware .....	.10
28 Packing of Chinaware, Earthenware and Glassware in Corrugated Fibreboard Boxes .....	.10
30 Crating and Packing Steel Office Furniture .....	.10
31 Temporary Decking for Use in Refrigerator Cars .....	.10
33 Use of End Boards in Loads of Fresh Fruits and Vegetables Packed in Baskets .....	.02
34 Method of Loading 100-Lb. Fabric Bags of Early Crop Summer Potatoes in Standard Cars (30,000-Lb. Load) .....	.02
36 Packing of Mirrors in Fibreboard Boxes .....	.10
37 Packing Bedroom Furniture (Case Goods) in Fibreboard Boxes .....	.10
38A Loading 50 Lb. Bags Potatoes in Refrigerator Cars, Bridged-Aisle Method. (30,000 Lb. Load) .....	.02
39 Loading and Assembly of Lug Boxes (Solid Load) .....	.05
39A Loading and Assembly of Lug Boxes (Divided Load) .....	.05
40 Packing Kitchen Enamel Ware in Corrugated Fibre Boxes .....	.10
41 Packing of X-Ray Tubes in Fibreboard and Wooden Boxes .....	.10
42 Packing of Neon Signs in Fibreboard and Wooden Containers .....	.10

Continued on Page 47

ard cars. The one-design freight cars do represent an important percentage of all new car construction. Granted the rare privilege—reserved usually for movie stars and presidential candidates—of riding in the cab with the engineer, the reader would note that the locomotive operator follows standard operational methods and procedures, that signalling devices and methods are also standard.

This desirable degree of standardization did not just happen. Needless to say, there must have been powerful forces underlying this fine state of affairs. What are these forces? The answer is quite complex; yet, it follows the logical path of all standards. In the beginning there was chaos. As most readers know, the railroad industry in this country did not mature slowly and logically; instead, it grew with leaps and bounds like a tropical vine in the most fruitful of jungle soils. Within the space of a few years after the importation of the first English locomotive, the vine's branches and limbs had twisted and squirmed and spread with amazing rapidity, at first around the New England States, then with great force in and about communities in the South and Midwest. By 1850 there were 9,000 miles of railroad tracks. Thirty years later the feelers of the vine had spanned the continent and 93,000 miles of track twisted and squirmed across the nation. Twenty years later in 1900 the number of railroad miles had jumped to 240,000, a sum greater than the total 1938 mileage in Great Britain, France, Germany, Russia, India, and Canada.

American railroads leaped from diapers to long trousers in an unprecedented short period of time. Their growth was nurtured by the pressing national need for cheaper and more rapid means of transportation. Cities, counties, and states invested or donated millions of dollars to aid in this undertaking. Missouri alone granted more than 19 million dollars to railroad companies and Texas loaned \$6,000 in bonds for every mile of track. In 1862 when the railroads were ready for bigger things, when the continent was to be spanned, the coffers of the national treasury

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were opened wide and aid in the form of bonds and land grants issued forth. During the period of trancontinental construction, a total of over 200 million acres of land were granted as inducements to railroad builders. It has been estimated that one-quarter the area between Minnesota and the state of Washington was granted to the railroads. In addition, government bonds were printed to the tune of \$16,000 to \$48,000 per mile of track.

Having contributed so heavily to railroad construction, the government naturally maintained an interest in the activities of the various roads. This kinship between railroads and government has existed from the beginning of railroading to the present and is one of the major forces influencing railroad standards. More so than in any other industry, the government is ever at the elbow of the railroad operators. Steel mills could convert to the production of plastics and the government would have little to say; Detroit could produce scooters instead of motor cars and Washington would be in no position to act; however, should a railroad line decide to change its rates, alter its timetable or modify its wage scale, the government, through one or more of its agencies, would take note and act. Should the management of a road get weary and attempt to give up the struggle, they would be back in business a few hours later with a federal warrant pressing against the back. This governmental concern traces back to the very beginning of railroading. State regulations antedate the Civil War. After the defeat of the South, many states passed Granger laws which undertook (to quote from the Illinois Constitution) "to pass laws establishing reasonable maximum rates of charges for transportation of passengers and freight" and "to correct abuses and to prevent unjust discrimination and extortion in rates of passenger and freight tariffs." These laws laid the groundwork for the passage of the Interstate Commerce Act of 1887 wherein the national government assumed control over the railroads. The law forbade rebates, discrimination, pooling and tariff agreements, as

✓ CHECK-LIST OF RAILROAD STANDARDS

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43 Recommended Arrangement for Loading 45,000 Pounds of Potatoes in 100 Pound Bags by the "Pyramid Through Load" Method05
45 Dictionary of Standard Terms for use in Describing Containers and Loading and Bracing Methods for Fruits, Fresh (Not cold-packed nor frozen) and Vegetables, Fresh or Green (Not cold-packed nor frozen)10
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Note: Quantity Discounts Available for all Above Publications.	

ASSOCIATION OF AMERICAN RAILROADS, BUREAU OF EXPLOSIVES, 30 VESEY ST., NEW YORK 7, N. Y.

Agent H. A. Campbell's Freight Tariff No. 4—ICC Regulations for Transportation of Explosives and Other Dangerous Articles by Freight, including Specifications for Shipping Containers (Plus Supplements)	\$2.50
Agent H. A. Campbell's Motor Carrier Tariff No. 7—Publishing Interstate Commerce Commission Regulations Applying to Shipments Made by Way of Common and Contract Carriers by Public Highway (Plus Supplements)	1.00
H. A. Campbell's Water Carrier Tariff No. 6—Publishing U. S. Department of Commerce Regulations (now U. S. Coast Guard) Governing the Transportation, Storage, or Stowage of Explosives Or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels	1.12
B. E. Pamphlet No. 21—I.C.C. Regulations applying to Transportation by Rail in Freight Service of Inflammable Liquids and Inflammable Compressed Gases shipped and handled by the Petroleum industry20
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AMERICAN ASSOCIATION OF RAILROADS, FINANCE, ACCOUNTING, TAXATION, AND VALUATION DEPARTMENT, 330 TRANSPORTATION BUILDING, WASHINGTON 6, D. C.

Railway Accounting Rules, September 1, 1947 Edition	\$ 2.00
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Superintendent of Documents, Washington 25, D. C.
 "Price List 25, Transportation and Panama Canal"

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"Price List 37, Tariff"

"Price List 59, Interstate Commerce"

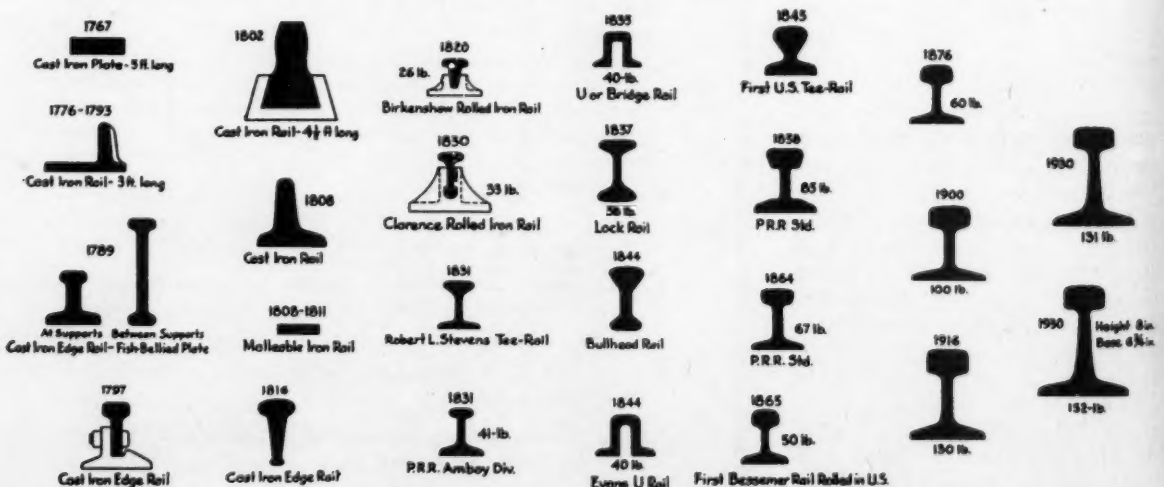
well as other acts designed to stifle free competition among railroads. The government also assumed control over finances, operation, consolidation, and other phases of railroading.

It is significant, and not entirely coincidental, that two years later a standard code of rules was adopted by all railroads to systemize and standardize the issuance and interpretation of train orders. For with closer government control under the Interstate Commerce Act and with the imposition of national laws, there arose a need for a standard, unilateral *modus operandi* so that the requirements of these laws could be met satisfactorily. To provide these standards, there were developed in the railroad industry a large number of trade associations. Some of these were: American Assn. of Freight Agents (1888), Railway Signalling Club (1895), Freight Claims Assn. (1892), Assn. of Railroad Telegraph Superintendents (1899), and many others.

These and subsequent railroad associations were the second force in the development of railroad standards. The third standards force can best be described as "natural." This so-called "natural force" is always operative in industrial standardization. Standards like masculine beards are products of maturity. Just as there can be no "five o'clock

(Continued on Page 60)

Types of Rail—1767 to Present



Chronological development of the cross section of the rail.
 Credit: American Iron and Steel Institute

AIR RATE MUDDLE

(Continued from Page 38)

rates below those in the airline tariffs then current. Whether this is so or not, the fact remains that the strictly cargo operators proceeded from the outset of their enterprises in the belief that they could "out-operate" the certificated airlines on cargo since the latter were still primarily concerned with the problems incident to their growing passenger traffic. The air cargo operators were convinced, from their studies of airline costs, that efficient air cargo lines, concentrating on low-cost, highly efficient all cargo operations, could provide the public with air cargo service not only at rates lower than any of the passenger-carrying airlines had offered so far, but probably lower than they could charge on a basis of costs involved. It is true that the air cargo operators were prepared to have a few of the airlines meet their rates, on a basis of pure competition, but it is also true that none of them believed that the certificated airlines could, or would be permitted to undercut the strictly air cargo operators' rates.

The air cargo operators were rudely awakened, however, when the so-called Emory Johnson Tariff of August 1, 1947 was promulgated by all the certificated airlines in connection with the re-activation of Air Cargo, Inc. Rates in this joint tariff were substantially above those of the all cargo operators but at the same time they represented a 25 percent reduction at a time when airline costs were not going down, but up. The next shock to the cargo operators was worse and took the form of what have come to be known as "the tariffs of October 5th." On that date American Airlines, United Air Lines and Pennsylvania-Central (Capital) Airlines filed reduced rates applicable to the commodities then forming the bulk of the traffic of the air cargo operators, California Eastern, The Flying Tiger Line and Slick Airways. These airline tariffs did not reduce rates between

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points where no substantial cargo operator competition existed, but were directed to the long-haul transcontinental routes. It was on these routes that the strictly cargo operators had been concentrating since the issuance of the Board's order exempting them from the need for certification as common carriers and pending decision on their applications in the Air Freight Case.

It is not surprising, therefore, that the cargo operators raised the cry of "rate war" and requested the CAB to suspend the latest airline tariffs. This, the Board refused to do on the grounds that the cargo operators had asked to be permitted to compete as common carriers with the certificated airlines and that the airlines were simply meeting competition by their latest rates but, at the same time, the Board offered an investigation of the tariffs of both certificated and uncertificated carriers. "The purpose of this investigation being to attempt to develop some rational principles for tariff-making in air transportation as well as to inquire into the validity of the tariffs that have been filed." In the meantime the tariffs of October 5th were to remain in effect.

On October 29, 1947 various amendments to those filed on October 5th were proposed by American Airlines, United Air Lines, Pennsylvania-Central (Capital) Airlines further reducing rates and in the case of United such reductions were made system wide. At approximately the same time Transcontinental & Western Air and a number of the smaller airlines also proposed reductions in the Agent Johnson Air Freight Tariff No. 1 (CAB No. 2) which had become effective the previous August. These changes were, however, relatively unimportant to the uncertificated air cargo carriers. It was these proposals, and these only, which were suspended by the Board and which would have become effective under the law on April 24, 1948 if the Board had not acted by that date.

The non-certificated cargo carriers asked the Board to do two things: "(1) to adopt a regulatory scheme for air freight rates which

will make it impossible for the passenger lines arbitrarily, and without reference to their costs of providing air freight service, to charge rates which are lower than those of air freight lines; and (2) to permit the air freighters to file new tariffs in the near future containing rates sufficiently higher than those which are presently offered to defray their increasing costs of service."

As the Board's investigation developed, the chief issued turned out to be the proper method of calculating the costs of a multiple-service (passenger-mail-and-property) operator in rendering air cargo service. Everyone seemed to agree that as a general proposition air cargo rates should bear a "reasonable relation" to the cost of providing the service. Serious differences of opinion, however, exist between the air cargo operators, on the one hand, and the scheduled airlines on the other, as to what formula would most nearly determine the "costs" to which airline cargo rates must bear a "reasonable relation".

The air cargo operators claim that, in their case, no problem arises; that their costs of providing service are the total costs of their business, since (with rare exceptions) their sole business is air cargo service. They also contend, and rightly so, that their rates must be sufficiently high to cover their costs of operation and provide a reasonable margin of profit. The certificated airlines, on

Investment Differentials

Buying a thing that is needed is not an investment, it is a necessity. Buying food is a necessity. Usually buying a pair of shoes is a necessity. In buying distribution services and equipment, for instance materials handling equipment, one may find that the lowest price for that particular type of machine is \$1,000 and the highest \$1,150. The \$1,000 would not be an investment, because the equipment must be bought. The extra \$150 would be an investment, because that expenditure is not absolutely necessary. Therefore the differential between the most expensive and the cheapest is the only true investment that is made. It has been demonstrated again and again that such a differential investment is worthwhile. The more expensive equipment generally is of a higher quality, and saves more money in the end than the original "investment."—W. F. S.

the other hand, are not entirely unanimous in their attitude toward the computation of their air cargo costs, but most of them take the position that these costs are properly to be computed on an "additive cost" or "by product" theory of accounting and point out that, if this theory is adopted, their air cargo costs are not only substantially below the rates published in any of their tariffs, but generally are below any that the air cargo operators can immediately hope to achieve.

The certificated airlines asked the Board not to be "diverted by false issues concerning the need of protection by the non-certificated cargo carriers" but to adopt a long-range approach to the development of cargo transportation by air and, above all, not to adopt any system of minimum rates because of the "hampering restrictions" which would thus be imposed on their operations. They also requested that the suspended tariffs be permitted to go into effect.

The CAB felt, however, that an unsound competitive condition existed in the cargo phase of air transportation in this country. This being particularly true in the transportation of cargo between the large cities where a number of the airlines, as well as the cargo operators, had established rates unjustified on economic grounds with the result that some of the carriers were incurring substantial operating losses. In the judgment of the Board, therefore, the situation required an immediate promulgation of a general minimum rate order setting a floor below which no cargo rate may go without express approval of the CAB and that such general minimum rates should be applicable to the entire industry. The following rates were therefore set: (1) a minimum rate of 16 cents per ton-mile covering the first 1,000 freight ton-miles of any shipment and; (2) a minimum rate of 13 cents per ton-mile covering the ton-miles in excess of 1,000 for any shipment.

In fixing general minimum rates the Board avoided prescribing, establishing or determining particular rates, rate structures, or

levels of rates. It was felt that not only was the information gained as a result of the Board investigation inadequate for such purposes, but also that the prescription of actual rates by regulatory action at this stage of the development of air cargo might well be so restrictive as to be extremely unwise. Of course, the fixing of general minimum rates by its very nature cannot assure profitable operation or guarantee the continued sound development of air cargo. It does, however, do what the Board thought absolutely necessary at this time—prevent unlimited rate cutting on a purely competitive basis.

During the investigation it was revealed that the assignments of ground and indirect expenses to cargo operations for the third quarter of 1947 for the largest certificated carriers, combined with the reported aircraft operating expenses of these carriers were:

	Cost per revenue ton-mile	Cargo revenue per ton-mile
American	28.77c	23.39c
United	25.18c	20.87c
TWA	27.46c	22.74c
PCA (Capital) ..	31.71c	26.05c

Comparable figures for the chief non-certificated cargo carriers (California - Eastern, Flying Tigers, and Slick) for the first three quarters of 1947 are:

Quarter ended	Cost per revenue ton-mile	Cargo revenue per ton-mile
3/31/47	18.75c	12.95c
6/30/47	17.43c	12.91c
9/30/47	15.92c	13.21c

Some in the industry question the wisdom of the Board in setting minimum rates so far below what appear to be industry cost levels but it must be borne in mind that the Board's rates represent the *minimum* and not the *actual* rates and give recognition to the development character of the service.

The Board has stated that it is not the intention to freeze rates in this early development period not to outlaw competitive rates but merely to "prevent the financial stability of the industry from being imperiled by unrestricted com-

(Continued on Page 81)

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MULTI-STORY WAREHOUSE

(Continued from Page 42)

stacked on the pallet load when placed in position at the storage point. This allowed personnel to get acquainted with use of equipment, pallet patterns and layouts. After a brief period of operation it was found that the trailing wheels (those under the load) of the electric jacks were breaking boards in the floors of the storage areas. It was too costly to re-floor this entire building or to install traffic plate so the operation was discontinued.

The next three warehouses were cooler warehouses with wooden floors. The method used was fork truck and pallet jack. The operation proved successful in increasing tons handled per man hour. It was found out that the trailing wheels of electric pallet jacks abused the wooden floors in the aisles and traffic plate had to be installed in all transportation aisles. This was the cheaper alternative to re-flooring. Pallet jack manufacturers, as yet, have not overcome this disadvantage.

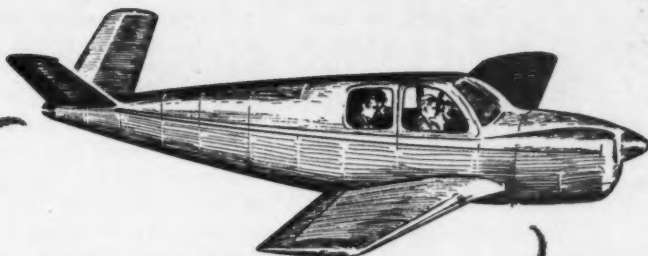
Work was also undertaken to standardize the operations and to write procedures. These procedures were given to supervisory personnel to enable them to set up efficient operations and to have a better control of their equipment. Procedures, carefully planned and followed, will help prevent inefficient operation.

A sample procedure that is now being followed at the Quincy Market Cold Storage and Warehouse Co. for unloading a refrigerator car of goods that may be palletized accompanies this article.

The speed of the operation depends on the length of time required to load the pallet and push it to the doorway of the car. Assuming that each pallet load would take an average of three minutes, this would be 1,200 lb. every three minutes. There would be 42 pallet loads to a 50,000 lb. car, taking a total of 126 min. to complete the car. With six men in the operation, this would be 12½ man hours

(Continued on Page 104)

PRIVATE BUSINESS FLYING



A recent Civil Aeronautics Administration study shows that 29 percent of the total non-airline or charter planes were engaged in strictly business flying in 1946, and that the use of the private plane for business is growing . . . Business considers the small plane a valuable aid because: 1. It saves time. 2. It builds company prestige. 3. It makes off-line localities accessible.

By JOHN H. FREDERICK,
Aircargo Consultant

THE privately operated plane is an important business tool. This is becoming increasingly apparent as more and more flying is done for strictly business purposes. This type of flying is that done in their own aircraft by companies or individuals in carrying out their business activities. (Much flying on airlines and by charter operators is, of course, for business purposes, but that is not what is under discussion here.)

The Civil Aeronautics Administration has made a study of what private planes were used for in 1946. This is the first survey of its kind ever made and it shows that about 29 percent of the total non-airline or charter operator planes,

15,750 to be exact, were engaged in strictly business flying in that year. These planes logged 1,068,000 hours of flying time, or approximately 11 percent of all the hours flown by private planes with an average of 68 hours per aircraft in the year. (See Table I) So far as can be determined from available data this is the greatest amount of business flying ever done in a single year to date.

Table I shows that, as is true of all private flying in 1946, the single-engine aircraft was used most for business purposes with 92 percent of the planes engaged in such activities being of this type and flying 78 percent of the hours. There were, however, 1,260

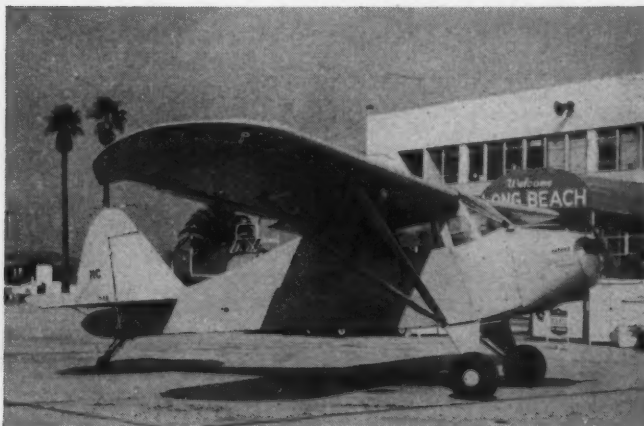
—Aircraft Industries Assn.



Short strips in the oil fields are good landing places for oilmen flying Stinson Station Wagons, which in five minutes can be converted from 4-place passenger planes to cargo carriers.

The Piper Vagabond is a two-place, low-priced business plane.

—Piper Aircraft Corp.



twin-engine planes used in business flying, and it is to be noted that these were in use more steadily than single-engined types, logging on the average 184 hours per plane in the year and accounting for 22 percent of the total business hours flown. Only 13 percent of the aircraft in business flying was single-engine accommodating 3 or more persons and these accounted for 15 percent of the flying hours.

Table II divides the business flying of the United States into the various CAA administrative regions, and it will be seen that more business planes were owned in the central part of the country than anywhere else, but that in the eastern part greater plane utilization was obtained by owners as measured by the average hours flown by aircraft. The fewest strictly business aircraft are owned, naturally, in those sections of the country where the least business activity is headquartered. However, even in the less industrialized sections many planes are used by farmers, ranchers, oil and gas companies and the like in business activities. Besides lack or presence of business activity, other causes for disparities in plane ownership and use are differences in weather conditions, lack of adequate airport facilities in certain localities, density of population, terrain characteristics and the like.

The CAA survey did not go into the details of what business flying actually consisted of, but the Personal Aircraft Council of the Aircraft Industries Assn. recently released the results of a study of 100 business plane users which gives us some of the answers. As to who actually flies in the business planes: 73 percent are used by company executives on general transportation flights; 48 percent by company personnel in sales promotion, trouble shooting, customer flights to plants, inspection, etc.; 32 percent by buyers and salesmen to cover wide areas

merce thinks highly of the small plane for use as a business tool. In the PAC survey 64 percent of those replying declared that the saving of valuable time was an outstanding factor; 30 percent declared that the convenience of being freed of time-table restrictions, as well as the ability to reach off-the-beaten-path localities impressed them; 22 percent declared that the economy in time and money and the utility of their own aircraft being at their beck and call was significant to them; and 13 percent declared that the establishment of company prestige, ac-

Table I
Number of Aircraft and Hours Flown in Business Flying by Type of Aircraft, Continental United States, 1946

Type of Aircraft	Aircraft		Total hours flown		Average hours flown per aircraft
	Number	Per- cent	Number (000)	Per- cent	
Single engine—2 place	12,410	79	663	63	53
Single engine—3 place and over	2,050	13	171	15	83
Total—all single engine	14,460	92	834	78	58
Total—twin engine	1,260	8	232	22	184
Total—single and twin engine	15,720	100	1,066	100	68
Total—other	30	...	2	...	67
Total All Aircraft	15,750	100	1,068	100	68

NOTE: This table excludes all aircraft operated by the scheduled airlines and by the Civil Aeronautics Administration.

Source: Compiled from CAA, Aircraft Use in 1946.

quickly and cheaply, and 11 percent for delivery and customer servicing, often under emergency conditions. It should be noted that the same plane can be used for all these purposes.

American industry and com-

quired through private plane operation, was a valuable feature.

The American businessman has always been smart about using new and better means of transportation to increase his profits, to
(Continued on Page 57)

Table II
Business Flying in Various Civil Aeronautics Administration Regions, 1946

Type of Flying Activity Measurement	Civil Aeronautics Administration Regions														Total U.S.	
	1		2		3		4		5		6		7			
	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%	No. (000)	%		
Hours flown by type of flying	227	11	121	11	241	10	182	14	138	14	104	10	56	7	1,068	11
Average hours flown per aircraft	80		63		66		76		63		57		54		68	
Number of aircraft used	2,819	25	1,909	31	3,639	28	2,383	33	2,166	37	1,820	28	1,012	29	15,750	29

Note: CAA Regions as follows:

- 1—Conn., Del., D. C., Maine, Md., Mass., N. H., N. Y., N. J., Penna., R. I., Va., W. Va.
- 2—Ala., Fla., Ga., Miss., N. C., S. C., Tenn.
- 3—Ill., Ind., Ky., Mich., Minn., N. D., Ohio, Wis.
- 4—Ark., La., N. M., Okla., Texas
- 5—Colo., Iowa, Kans., Mo., Neb., S. D., Wyo.
- 6—Ariz., Cal., Nev., Utah
- 7—Idaho, Mont., Ore., Wash.

This table excludes aircraft operated by the scheduled airlines and by the CAA.

Source: Compiled from CAA, Aircraft Use in 1946.

Packaging Poll

TWO out of three of 185 leading companies in the 6.5 billion dollar a year packing and packaging industry foresee a mild business recession beginning next fall or early 1949 and lasting from six months to a year, according to a poll taken by the American Management Assn. of the firms exhibiting in its 17th Annual Packaging Exposition and Conference, Cleveland. Most firms questioned believed that their net profits would drop about 15 percent in the next year, but that an increased demand will follow as industry realizes the value of packing and packaging in distribution.

THE PACKAGING SHOW

The 17th annual AMA Packaging Conference and Exposition, held in Cleveland, April 26-30, focused a spotlight on scientific packing and packaging as a means to more efficient and economical distribution.

SCIENTIFIC packing and packaging as means to more efficient and economical distribution was the keynote of the American Management Association's packing, packaging and shipping conference held in Cleveland, April 26-30, in conjunction with the association's 17th Annual Packaging Exposition. The exhibits, numbering 187 and occupying more than 98,000 sq. ft. of space in the high Cleveland Auditorium, were inspected by representatives of nearly 5,000 companies in 400 different industries and by delegations from 22 foreign countries. Topics discussed at the conference included means of reducing costs through new applications and the better management of existing techniques and through new methods and equipment to facilitate handling and to increase sales appeal . . . The conference revealed that supplies of raw materials, machinery and labor have finally caught up with the current requirements of container suppliers. Addresses by outstanding spokesmen for the packing and packaging industries advanced many new ideas in pre-packaging, in re-usable containers, in packaging and merchandising methods. Two clinics featuring current trends and developments in the shipping container and consumer packaging fields were outstanding features of the conference.

THE opening technical session, under the chairmanship of E. A. Throckmorton, president, Container Laboratories, Inc., Chicago, featured addresses on the current outlook for essential packaging materials, the preparation of packaging specifications and a discussion of the various printing processes used in packaging. Packaging costs, it was stated by Lee R. Forker, general purchasing agent, Quaker State Oil Co., Oil City, Pa., have increased 30 percent to 150 percent since the war. The demand for textile bags, according to Mr. Forker, decreased during the first quarter of 1948, resulting in better availability at lower costs per unit. In the metal shipping container field, future price trends and availability were said to be geared directly to sheet steel production, and no substantial decrease in the current de-

mand was foreseen. Metal cans, 29 ga. and lighter, were said to be more readily available than at any time since the beginning of World War II and there is little chance of any price change for the balance of 1948. The demand for collapsible tubes, of extruded lead or lead alloy and aluminum, is not expected to exceed the 1947 demand and this year's supply was said to be adequate. Glass containers, Mr. Forker said, currently are being produced at a rate level which represents a 25 percent drop from that of 1947. The decline in demand, it was pointed out, is caused, in some degree, by the prompt availability of substitute metal containers and by the growing demand for treated paper containers. Because freight on glass containers represents a large part of the cost, there is tendency to localize purchases,

giving smaller inventory, better turnover and a very close control of quality.

Even with government aid, wood box requirements for export in 1948 are expected to be less than those of 1947. Mr. Forker said. Competition in this field was said to be keen, deliveries prompt, but operating supplies, such as steel hoops, and cement coated nails and wire are in short supply. The demand for heavy duty crating is expected to continue firm for the balance of the year. New modern paper mills and linerboard manufacturing improvements have increased the available supply of paper shipping containers to the extent that there is no shortage at the present time. This situation, coupled with the decreased demand in many consumer items, packed in paper, has given rise to competition for the first time in several years. Because of possible demands resulting from our expanding national defense program, it was difficult, Mr. Forker said, to make predictions relative to future supplies; however, a serious future upset was not foreseen. Good quality folding cartons, paper bags, tubes, and cans continue available and without any recently reported price changes. Mr. Forker stated that improved packing, sealing and handling equipment was now on the market but that deliveries often were six to nine months.

The formulation and maintenance of packaging specifications are important factors in reducing overall packaging costs, Harold F.

Coleman, of the Rexall Drug Co., Boston, told members attending the conference. Too often, he said, established specifications are not strictly adhered to. Once a specifications department is established, only specified parts should be used and no "just as good" substitutions permitted without authorization. In the long run, Mr. Coleman said, rigid control will result in fewer rejections of merchandise, in less trouble from breakage and leakage, and fewer headaches.

The suitability of the various printing processes—stencil, letterpress, planograph and intaglio—to specific requirements was discussed in detail by E. H. Balkema, of the purchasing department of the Colgate-Palmolive-Peet Co., Jersey City. Each of the various processes, Mr. Balkema stated, has advantages peculiar to itself and these should be utilized in order to obtain maximum effectiveness and sales appeal.

The continuing need for more effective packaging for export was outlined to the Tuesday Little Theatre session by Walter H. Husted, assistant manager, claims and insurance, Isthmian Steamship Lines. Figures he quoted proved that damage claims on American and Canadian railroads increased, from 1941 to 1947, more than 500 percent, and that 50 percent of the equipment sent overseas to the Signal Corps in the first year of the war was unfit for use. He scored the practice of saving a little on the container at the price of safe arrival of goods, calling it false economy, since customers were unsatisfied, and would, when other countries again became active at exporting, turn to them, remembering how American exporters had failed when given the chance.

He mentioned that the small amount of extra cost for a safe container would eventually be more than offset by lower freight charges and insurance rates. Among other items, he mentioned that markings on packages must be in the language of the foreign stevedore who must unload it; and packing in units on pallets often saved the carrier and consignee time and money.

"Gearing the Package to the Sales Forecast" was the subject of a talk by M. C. Pollock, sales promotion manager, C. A. Swanson & Sons, in the Little Theatre on Tuesday. He outlined the steps taken by his firm in establishing a new package design, from the picking out of the colors to the final evolving of the label design, all picked out from consumer preference studies. Then the packaging of boned turkey in metal cans, which had been substituted for glass containers, was described. The use of cans with a new cellulose acetate label was said to move the product faster than ever, proving that "the package was its own best salesman."

New opportunities in the field of prepackaged perishables were discussed at Tuesday's Little Theatre session by Dr. Charles W. Hauck, professor of rural economics, College of Agriculture, Ohio State University. Dr. Hauck stated that that consumer acceptance of prepackaged goods was high; wastage, he said, was considerably reduced and pre-weighed, pre-priced, uniform packages save on clerkage and increase sales volume. Some of the problems that remain to be worked out are the effects of prepackaging on nutritional values and palatability, the reclaiming of

Packaging Show Clinics

SHIPPING container and consumer packaging advances and improvements applicable to all industries were discussed at two "clinics" at the recent AMA Packaging Exposition and Conference in Cleveland. At the one, a special panel composed of a package designer, a food technologist, a social psychologist, a packaging engineer and a typical consumer analyzed consumer packaging from the standpoints of self-selling power, shelf appeal, content protection and preservation, and usefulness in the home. Color photographs of typical consumer packages were reproduced on a screen, and their relative merits examined. The reliance on psychological research and scientific testing and their application to the point of sale were thoroughly discussed.

The container clinic exhibited 70 different products ranging from small vacuum tubes to 2,000 lb. construction items, packaged and packed in methods especially designed to solve typical industry problems. Slides illustrating interior and exterior engineering and design of the packages were exhibited. W. R. Hummel, methods supervisor, Western Electric Co., led the discussion, and experts from that firm undertook an analysis of all the containers shown.

packaging house wastes, the retardance of molds and decays, and quality and condition control. Dr. Hauck closed by recommending that research of this type be carried on under the Agricultural Research and Marketing Act, and with the cooperation of prepackers and related businesses.

"Manufacturing is so interlaced with warehouse problems that factory efficiency depends in large part on sound warehouse planning," John D. Sheehan, of Drake, Startzman, Sheahan, Barclay, Inc., told the gathering in the auditorium Tuesday. He outlined the steps taken in planning a warehouse program. A forecast of sales is necessary to compute requirements for the stock level to be maintained. Special conditions, such as bin and open stock, must be considered. Aisle space depends on three factors: materials handling equipment to be used, volume of traffic, lot sizes. The accommodation of small lots is often the hardest problem in warehousing, and racks and box pallets have sometimes been found to solve the problem. Location of product is important, from the standpoint of the time required to handle it in and out and the frequency of handling. He concluded by recommending that more firms study the possibility of having one vice president in charge of physical distribution, warehousing, handling, traffic, packing and packaging, etc.

The importance of cushioning materials in modern packing and packaging was discussed at the Tuesday auditorium session by S. L. Swenson, product engineer, Kimberly-Clark Corp. He stressed the fact that few people could state with accuracy the "g" factor of their product and mentioned the need for a practical approach to the problem of so cushioning to prevent damage. Cushioning serves four purposes, he said, bracing, blocking, flotation and finish protection; and sometimes the special purpose of insulation and absorption. He then outlined several new cushioning developments, among them lined bags, the cush-on strap, apply packing, the hat-jama, etc.

BUSINESS FLYING

(Continued from Page 54)

simplify his system of distribution, as a tool in his productive process. This was true of the automobile and the truck. It will be equally true of the airplane. Despite the obvious advantages there are, however, a number of problems that have to be overcome before business flying can come into its own. Of those queried in the PAC survey, 43 percent registered complaints about airport facilities; 32 percent found that adverse weather conditions hindered full plane utility; 24 percent deplored the lack of ground transportation when they arrived at some airports; 20 percent emphasized the national complaint of "not enough airports;" 15 percent wanted more hangars so that planes need not be staked out in the open; and 10 percent stressed the poor location of existing airports. It is quite significant that no complaints were registered against particular aircraft but against conditions under which they have to be operated.

Most of these conditions complained of are either being corrected or show chances of being taken care of very soon.

It may well be that, as in the case of the automobile, the business use of aircraft will usher in that "age of flight" we have heard so much about. Some 20 percent of the companies queried by PAC on business planes reported that their personnel, getting used to flying in company planes, had purchased aircraft of their own. History repeats itself, if one recalls that about the time of World War I the automobile manufacturers sold fleets of "salesmen's coupes" and other models to commerce and industry and that the families of these men, after they realized what was going on, what they had been missing, bought family cars. As a matter of fact the modern personal plane can be flown by just about anyone, as is shown by the fact that 76 percent of the companies using business planes, re-

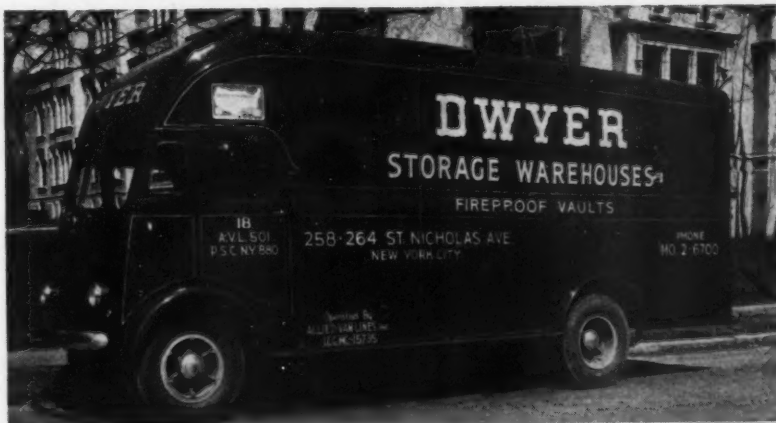
porting to the PAC, revealed that their company personnel, not professional pilots, were the operators.

Business flying will increase rather than decrease. It is a time saver—a saver of the only time that is really worth money—business time. There is a direct appeal to the pocketbook. Greater earnings possibilities result from the additional time flying makes available for other things; increased opportunities open because of the rapidity of travel to distant and otherwise inaccessible territories, thus opening sales possibilities which otherwise would have to be foregone or be placed in the hands of less capable individuals; closer supervision and more frequent contacts with sales organizations become possible; quicker action can be given on servicing jobs, as when heavy machinery breaks down in the field and requires experts for repairing; there is added energy because of less travel fatigue; there is more time for relaxation; and last but not least there is the added actual dollar value of the working hours made available.

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A Skeptic at a Board Meeting



Jack McCormack, free lance traffic manager, discusses the important role of the Shippers Advisory Boards in the transportation of the nation's goods.

By HENRY G. ELWELL Traffic Consultant

THE conversation in the office of the Holden Mfg. Co. had shifted to the subject of shortages of freight cars. Jack McCormack, free lance traffic manager, brought up the topic by referring to conditions in 1922 and '23.

"In fact," asserted McCormack, "the situation existing throughout those two years affected shippers-consignees and the railroads even more seriously than the freight car shortage of 1946 and '47."

Robert Reed, traffic manager of the Holden organization, shook his head in disagreement. "Don't be silly," he retorted. "The freight car shortage of the past two years was far worse than any in the country's history."

"Perhaps in magnitude," replied McCormack, "but not in its effect. Not once was there a complete nation-wide tie up such as occurred several times in '22 and '23 and earlier."

Author's Note: Names of persons and company are fictitious.

"But," growled Reed, "in 1946 and '47 the tonnage offered the rail carriers by shippers was much heavier. How could it be possible for the car shortage of 1922 and '23 to be more severe?"

"Because," explained McCormack, "during the recent crisis we had the Office of Defense Transportation. That body co-ordinated the operating efforts of the rail carriers. Then, too, the freight car efficiency committees of the Shippers Advisory Boards were in action. Back in '22 and '23 there was no O. D. T. and no such groups as the committees. In those years the attitude as to freight cars seemed to be 'every man for himself and the devil take the hindmost.' It wasn't until late in 1923 that active consideration was given to forming the Shippers Advisory Boards."

"Oh, I've heard of the Shippers Advisory Boards," exclaimed Reed in disdain, "but I'm not convinced they ever did much good. I've taken no part in their affairs."

After all, what can be done by an array of shippers quarreling with a bunch of railroad men?"

Jack's face showed amazement. "Bob," he cried, "it's evident that you, like too many other folks in the industrial world, haven't checked into the work of these Shippers Advisory Boards. There are thirteen of them. In the first place, the meetings of the boards bring about cooperation between shippers and railroads. There often may be extreme divergence in opinions, but there are no quarrels such as you seem to imagine. The developments gained over the years have been very beneficial."

"That's what you claim," challenged Reed, "but I'd rather have definite confirmation from some source other than merely your personal say-so as a board member. For instance, can you point to even one case where official recognition has been extended to any transaction of these boards?"

"Bob, I could cite statements galore, all lauding the perform-

ances and the achievements of the boards. I believe one will suffice. Furthermore, I'll hold it to a single department of the boards. Will that be satisfactory?"

"Go ahead and quote," grumbled Reed, "but it must be authentic."

"Don't worry about that angle," laughed McCormack. "To indicate what has been accomplished, I give you a citation from a decision of the Interstate Commerce Commission. 'There has been a continuing cooperative effort between the shipping public and the railroads for the past several years in the matter of efficiency of car use. The results have been productive of increased efficiency. This . . . was accomplished through voluntary cooperation of car efficiency committees of the 13 Shippers Advisory Boards, and other agencies.' That is quoted from ICC Docket 29670."

"Well," admitted Reed, "you surely quoted from an authority. If that's the judgment of the commission, maybe I should know more concerning these boards."

What about the one to which you belong? Are its activities similar to those of the other twelve boards?"

"In the main, yes," McCormack answered, "although details of operating may slightly differ in specific territories. However, the efforts of the board of which I am a member are along the lines of all the others. It was established early in 1924 and has continued to function ever since. Its territory embraces several states. As an example, one board serves the New England states, another the Middle Atlantic states, a third the Midwest, and so on."

Jack went on to explain that the board with which he was affiliated, like the others, is a voluntary association consisting only of shippers/consignees. There are no membership dues, fees, or assessments. Meetings are generally held quarterly, and the places are rotated among the cities within the board's territory. Then he listed the purposes of the board: "(1) To promote adequate car supply and efficient transportation service through the interchange of ideas

among the members of the board and between the members of the board and the railroads and through cooperation with the Car Service Division . . . in developing a thorough understanding of the transportation needs of industry; to constitute a forum for study and free discussion of transportation problems. (2) To study production, markets and distribution of the commodities produced in its territory with a view to coordinating transportation service with established trade practices."

"Jack, I must confess I hadn't the slightest idea that the Shippers Advisory Boards operated on that broad basis."

"If," suggested McCormack, "you should attend a meeting of the board serving the territory in which your company's plant is located, I'm sure you would fully realize what is being done. I refer especially to such things as freight car supply, freight loss and damage prevention, and kindred matters."

(Continued on Page 68)



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STANDARDS AND SPECIFICATIONS

(Continued from Page 48)

shadow" among nursery school youngsters, so there were no railroad standards during the period of ruthless, cut-throat competition among early railroads. However, with consolidation of competing roads and after the damaging rate wars and after many years of coercion, corruption and combination, there arose a "natural" environment for standardization. This force in industry operates at all times in the development of standards. A young industry with many small operators, all fighting at one another's throats, is too busy to standardize; a mature industry where small operators have been consolidated into a few large enterprises must standardize if it is to exist.

Thus, we can see that the excellent system of railroad standards is the result of three powerful forces: (1) government control and regulation, (2) self-regulation and cooperation through trade associations, and (3) the "natural" developments within the industry leading to a proper standards environment.

In 1947 the American railroad industry represented an investment of over 30 billion dollars, earned close to 3/4 billion dollars, employed an average of 1,356,000 persons, paid out to its workers over \$4,350,000,000, carried over 800 million passengers and hauled 3 billion tons of freight. The standards body for this industrial colossus is the Assn. of American Railroads. Over 96 percent of the entire American railroad industry, 90 percent of all the business it transacts, and 93 percent of all rail mileage in the United States, Canada, and Mexico is combined in this one huge, voluntary trade association. AAR was organized in 1934 after consultation with and with the approval of the late Franklin D. Roosevelt and Joseph B. Eastman, then Federal Coordinator of Transportation. The association combines within its organization the activities of many earlier associations. The standards activities of these groups have been maintained by AAR. A list

of current AAR standards issued in March of this year takes up 44 pages and contains literally thousands of standards and specifications covering all phases of the railroad industry.

Railroad trains glide along standard trackage. In cooperation with the American Iron and Steel Institute, the American Society for Testing Materials and others, the design, production, and testing of steel rails, joint bars, track bolts, track spikes, and other ferrous track materials have been standardized by the construction and maintenance section of AAR. Wood ties are produced in accordance with standards developed cooperatively by the Railway Tie Assn., West Coast Lumberman's Assn., and other lumber groups with AAR. The National Sand and Gravel Assn. as well as other groups in this field work together with AAR in the development of standards for roadbeds.

The standards activities of the construction and maintenance section cover as well the design of bridges, trestles; buildings, tunnels, in addition to facilities for servicing of locomotives, cars, water supplies and terminals.

The signal section "deals with the development of improved standards of railway signal apparatus." In this work it has published specifications covering among other things automatic signalling, remote control of switches and signals, automatic interlocking, car retarders, protection of spring switches and related topics.

The electrical section "collaborates with technical organizations (ASA, ASTM, and others) to effect a greater degree of standardization of electrical practices and the design, installation, and use of electrical apparatus along the roadway and on structures of railroads."

The mechanical section establishes standards for the design, materials, and methods of fabricating freight cars. This section has jurisdiction over design, building, maintenance, repair, interchange,

and inspection of locomotives, cars, and other railroad mechanical equipment. One example of its work has been the reduction of sizes and kinds of freight car axles from 50 to one standard design made in six sizes. Other components such as wheels, bearings, brake shoes, brake heads, car couplers, etc. have been similarly standardized.

Thus far, we've seen that standards control the trackage and rolling stock as well as other railroad equipment; however, the standards picture does not end there. Codes for operating rules, for block signals and interlocking, for rental agreements of wrecking cranes and outfits, for detour agreements, and for other phases of rail operation are standardized by the AAR operating section.

The transportation section deals with standard rules and regulations governing car service, demurrage and storage, and detention and use of freight cars owned by other lines. The cooperative use of rolling stock made possible by the activities of AAR has resulted in a tremendously large increase in efficiency of freight car utilization. For example, in 1947 the American railroads carried six percent more freight than in 1946 despite the fact that there were 7,500 fewer cars in 1947 and despite the fact that almost 50 percent of all the cars are over 21 years old. Because of cooperative use of freight cars and because of ingeniously devised accounting systems for charging for use of these "alien" cars, the amount of freight carried per freight car has jumped impressively. In the five year period between 1939 and 1944 the load per car increased by 2.5 tons. In 1939 utilization of freight cars was 33 percent; in 1947 the figure rose to 42.1 percent. The transportation section keeps close tabs on the location of the nearly 2 million cars regularly used in interchange service.

The freight loading and container section of AAR functions to "develop packing and crating specifications and loading methods in closed cars for various commodities other than explosives." The standards issued by this body are

of immediate interest to shippers and receivers of rail freight. The use of these standards has resulted not only in less damage to merchandise in transit but also to more economical packaging methods and lower freight rates. Standards and specifications for shipments of chemicals, radioactive materials, matches, charcoal, gases, oils, and other dangerous goods are standardized by the Bureau of Explosives. This group develops Interstate Commerce Commission standards for shipments not only by railroad but also by motor and water carriers.

Standards for the "design, installation, operation, and maintenance of telegraph and telephone wires, lines, circuits, equipment, and practices including the study, test, and adoption of new means and methods for the advancement of the efficiency of railroad communications services whether by wire, by induction, or by radio" are developed by the communications section.

As indicated earlier, the ICC plays a dominant role in the development of railroad standards.

Despite current disputes on rates between the ICC and the railroads, there has been a remarkable degree of cooperation between the two for many years. It has been stated that the commission is one of the most respected of all government agencies, occupying a role that is equalled only by the Supreme Court. The degree of cooperation attained is indeed remarkable. The role of AAR bureau of explosives in developing standards for ICC is unique in the annals of industrial-governmental cooperation. The duties conferred by Congress on the ICC in its regulation of railroads include among others such functions as: establishment of through rates and joint rates; regulation of car pooling, consolidations of roads, safety devices, switch connections, car services, etc.; administration of railroad bankruptcy laws, hours of service for railroad employees, construction and abandonment of existing lines, and the posting of rates and regulations; determination of mail transportation rates, fixing of time zones, awards of reparations; investigation of rail

accidents, purported anti-trust activities, and railroad safety appliances and safety procedures; inspection of locomotives, automatic train controls, the transportation of explosives, and the records of various lines; authorization of the issuance of securities; publication of statistics; and other functions connected with the administration of the various sections of the Interstate Commerce Act. In order that these various functions can be performed by the limited staffs available, the ICC has actively encouraged the development of standards and specifications for railroading through the machinery available in the AAR.

The current freight car shortage is perhaps a negative example of the influence of standards. Without doubt the existing AAR standards have aided greatly in stretching the depleted supply of freight cars. Without standard parts and standard maintenance and repair methods, the present crop of old and worn cars would long since have ended up in some junk pile.

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PACKING PRIMER

(Continued from Page 21)

through a definite, depictable cycle. All signs indicate we are at the point of upswing towards better packing. Ordinarily, this would be a healthy thing. Unfortunately, this beginning of a return toward heavier protection appears to be in the hands of a new crop of packers and craters, and the amateurishness of some of our shipping containers offsets with basic construction faults the benefit of the good intentions.

Before considering the underlying causes in this cycle of the approach and execution of shipping container techniques and of how industry may once more prime the impulses which activate perfect shipping practices, a word of qualification is in order. Certainly not all shipping organizations fall under the implications of general observations—good or bad. There are many manufacturers who have gone right ahead making steady progress in their packaging departments. This packaging, so far as postwar improvements are concerned, has pioneered into newer methods which have held on to the gains of the war period as regards safety and preservation of cargo, while adding features of economy of construction, lightness in weight, and reduced bulk.

There are still many hundreds of shipping departments, traffic men and packaging engineers who intelligently make a fetish of wiping out or reducing to a negligible minimum the spectre of freight damage claims arising from poor packing. They are not afraid to put the spotlight of blame upon their own preparation methods when report of container failure comes to hand and take positive steps to correct the situation where greater container strength or interior protection is indicated. Packaging progress is hardly at a standstill, and many individual laurels have been won by packaging men each month since the end of hostilities.

It is enough to know that those preparing their goods inadequately to withstand all the rigors of

transportation, weather and handling, through to destination, are in sufficiently large numbers to cause concerted action on the part of now alarmed transportation men and insurance companies. Also mitigating against the packaging efforts of conscientious manufacturers is that fact that quite often there is not a shipment to the end-user.

For example, an electrical goods manufacturer may pack perfectly a table model electric power motor; a machine goods manufacturer may carefully cushion and preserve his highly polished precision gears so that they arrive in A-1 order; a clock manufacturer may deliver an automatic counter without a flaw in a carload; an electronics house may get through to destination hundreds of devices for detecting flaws; the furniture maker may ship work benches so cleverly that no reasonable amount of abuse in transit could mar his finish—yet if all of these and sundry other items are routed to a manufacturer who assembles and converts them post-haste into a single assembly for large-scale

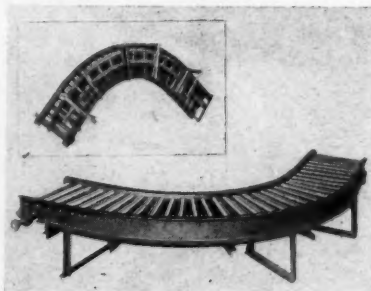
cutting of textiles and this is shipped in a crate which violates the principles of safe shipping, then the net effect of good packing of the original component parts is lost.

It is easy to trace the cycle through which packing procedures appears to have passed. First, war production gradually evolved packing and crating practices in industry which excelled anything up to that time. As industry converted from war contracts to normal production, the pendulum swung away to the other extreme and soon it was easy to spot war surplus goods in transportation by the contrast in packaging alone. Foreign markets were clamoring for U.S.A. merchandise and exporters quickly forgot the lessons in packing for water shipment which had only recently been learned at such tremendous expense.

Now a "reaction to the reaction" is setting in, but with this difference. Many new forwarding and transportation companies, new small industries, new exporting firms, and new personnel in old companies have come into being during the past three years. Where America's heavy industry and shippers to the last man had had drilled into them the lessons of proper packing and crating, this team is no longer intact.

Recently, I watched a carload of heavy electrical instruments being discharged for a power house installation. The market weight was almost 400 lb. each, in a relatively small shipping unit—rectangular, about waist high. A simple style one box had been used—that is, a box with six plain sides—no cleats or battens. Also, there were no straps. From the nailing pattern, it was apparent there were no inside cleats or braces. Heavy lumber, perhaps two inches, had been used. With each movement of a case out of the car and on the truck as the entire weight of the unit rested on a corner, the boxes began to weave and warp. A fall of not more than three or four inches to a corner would have been sufficient to split the unit wide open. Lesson one, in any packing and crating manual is the rule—Not

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How Heavy, But How Well, Determines The Carrying Capacity Of A Box.

A single instance could not indicate a trend, so I decided to make a survey on an ocean pier holding miscellaneous freight for water shipment. I counted three bulk shipments where far in excess of the necessary amount of lumber had been used in constructing the export cases or crates, but with which, by omitting strategic reinforcing diagonals, cleated heads or other supporting factors, the slightest jolt in lifting in or out of the holds was certain to invite damage. Naturally, it is good to see an effort being made to improve the strength of the containers, but the normal impulse to build up thickness of the outer container—as any packaging engineer would point out—is not the answer if the original design is wrong functionally.

Apart from these instances, where new shippers, or else older shippers with a new set of employees handling the preparation of cargoes, are in the field, the

larger contributors to our soaring freight claim figures are those older shippers who should know better, but who either are content to follow the false economy of packing inefficiently, or else are not fighting sufficiently hard to secure from their suppliers shipping containers that will stand up through to destination.

There is in New York, and no doubt in other large markets as well, a small but flourishing business dealing in newly packed canned goods and other food products, at considerably less than manufacturers' list prices. These are the dented cans, the slightly crushed boxes, the soiled bags, etc., which have gone through the adjustment of damage claims and even though contents may be unimpaired, cannot be sold at standard prices. The surprising thing to be noted at a dealer in such goods, is that while any manufacturer's brand may occasionally be found (for not all damage is the fault of the shipping container), there are certain manufacturers whose goods can always be expected to be found in continuing

quantities. Since several of these are not the largest in their field, the conclusion cannot be that it is percentage-wise. A reasonably safe conclusion is that these shippers are sorely in need of a packaging "primer" in the blasting, or waking-up sense of the word.

In this latter sense of the word, there is a primer, short of a national emergency, that would effectively stimulate packing and crating of the highest level. Reams of literature, streams of publications and dreams of packaging engineers alone cannot jolt shippers into uniform, consistent excellence in cargo preparation. What can achieve such an effect and do so naturally is the pocketbook. If in the ultimate future, carriers—whether truckmen, rail, vessel or air—had inspectors and standards for marking containers "good," "fair" and "inferior," if shipping rates, or that portion which embodies insurance, could be adjusted upward or downward, depending upon the merit of the container, there would be our primer without more ado. It is a situation worth mulling over.

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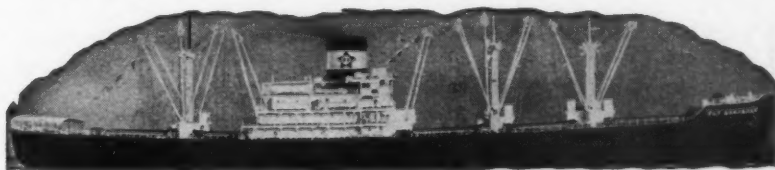
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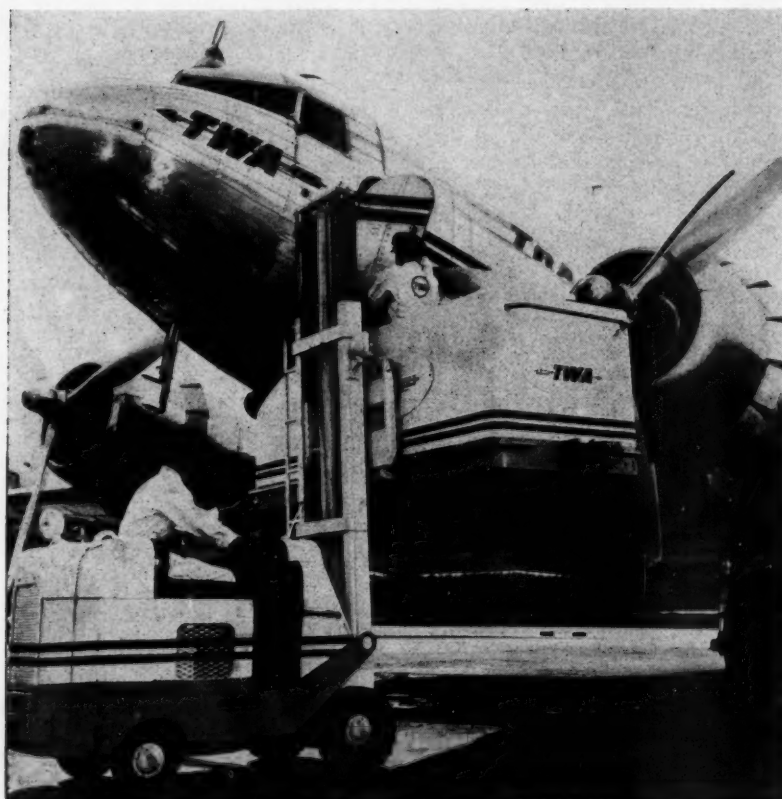


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AIRLINE TARIFFS

PART I

By G. LLOYD WILSON



The Civil Aeronautics Act requires the publication of tariffs by all domestic airlines and foreign lines operating in this country . . . Dr. Wilson discusses the requirements of the act in relation to rebates, reduced fares, divisions of joint rates and fares, changes in tariffs, power of attorney and concurrences.

THE Civil Aeronautics Act of 1938 requires that domestic and foreign air carriers publish and file with the Civil Aeronautics Board copies of their tariffs of rates, fares and charges for air transportation services. This requirement applies not only to local tariffs but also to tariffs naming joint rates or fares maintained with connecting domestic or foreign air carriers. In all cases the tariffs must be kept open for public inspection.

The act requires that the rates and fares be published between points served by the air carrier and "between points served by it and points served by any other air carrier or foreign air carrier when through service and through rates have been established."¹

The tariffs of the carriers must show, to the extent required by the Civil Aeronautics Board, the classification, rules, regulations, practices and services in connection with commercial air transportation. The board is given jurisdiction to prescribe, by its regulations, the form and manner in which tariffs are to be published, posted and filed, and the data which they are to contain. The board is empowered to reject any tariff which fails to meet the statutory requirements or its regulations. A tariff which has been rejected is automatically void.

The act requires that the air carriers' rates, fares and charges shall be stated in the tariffs in terms of lawful money of the United States. The tariffs may also state this information in terms of other nation's currencies

for use in international transportation. In the case of foreign air transportation they may contain information required by the laws of countries other than the United States in which the United States or foreign air carrier is authorized by law to operate.²

Observance of Carriers' Tariffs

Like the Interstate Commerce Act, the Civil Aeronautics Act requires carriers to observe their tariff schedules strictly. The act states, substantially, that no air carrier or foreign air carrier may charge, demand, collect or receive "a greater or less or different compensation for air transportation, or for any service" in connection with it, than the rates, fares or charges specified in its currently effective tariffs.

¹Civil Aeronautics Act, 1938, Public No. 706, 75th Congress, 3rd Session, Chapter 601, Section 403 (a).

²*Ibid.*, Section 403 (a).

Rebates

Domestic and foreign air carriers are forbidden by the act to rebate and to afford privileges and facilities except under lawful tariff regulations. The act provides that no air carrier or foreign air carrier shall "in any manner, or by any device, directly or indirectly, or through any agent or broker, or otherwise, refund or remit any portion of the rates, fares, or charges so specified." The carriers, likewise, are forbidden to "extend to any person any privileges or facilities, with respect to matters required by the board to be specified in such tariffs, except those specified therein."⁵

Free Transportation and Reduced Rates

The tariff observance and anti-rebating provisions of the Civil Aeronautics Act do not prevent the carriers subject to it from granting, under certain conditions, free passes or rates lower than those published in the tariffs. By express provision of the act, the carriers may issue free or reduced-rate transportation to certain persons, or under certain circumstances, subject to such terms and conditions as the board may prescribe. The persons and circumstances include:

1. The directors, officers or employes of the air carriers, and their immediate families.

2. Witnesses and attorneys attending legal investigations in which the air carrier is interested.

3. Persons injured in aircraft accidents, and the physicians and nurses attending them.

4. Persons or property needing transportation in order to provide relief in cases of "general epidemic, pestilence or other calamitous visitation."

5. In the case of overseas or foreign transportation, such other persons, or under such circumstances, as may be prescribed by the board.⁶

⁵ Ibid., Section 403 (b).

⁶ Ibid., Section 403 (b).

Divisions of Joint Rates and Fares

The Civil Aeronautics Board is given jurisdiction under the act to require that all air carriers keep currently on file with it the divisions of all joint rates, fares and charges in which the carriers participate. If airline "A" establishes jointly with airline "B" a through passenger fare from New York City to Dallas via carrier "A" from New York to Chicago, and carrier "B" from Chicago to Dallas, the respective shares of this single sum joint through fare accruing to each carrier are their respective divisions. These the board may require to be filed with it and to be revised if changes are made in the bases.⁷ Further, every air carrier has the duty of furnishing reasonable through service in connection with other air carriers, upon reasonable request. The joint rates, in such cases, must establish equitable divisions which will not unreasonably prejudice any of the participating air carriers.⁸ The board has the power not only to control existing through routes and joint rates, but may also order the establishment of new through routes and joint rates whenever required by the public convenience and necessity.⁹

Changes in Carriers' Tariffs

After carriers' tariffs are published, posted and filed with the Civil Aeronautics Board, as required by the act, no changes may be made ordinarily except after statutory notice of thirty days. The procedure of making changes is similar to that of filing tariffs. Notices of tariff changes must state both the changes proposed and the time when they are to become effective.

The act stipulates the changes in tariffs which may be made only under these conditions. They include changes in rates, fares or changes, or in rules, regulations, classifications, or practices which affect them or the value of the service rendered.

The Civil Aeronautics Board has a rather wide area of discretion within which it may permit modification of the act in this

⁷ Ibid., Section 403 (d).

⁸ Ibid., Section 404.

⁹ Ibid., Section 1002 (h) and (l).

respect. It has exercised its discretion over the publication, filing, posting, and making of changes in tariffs by specific action in particular instances, and by general orders "applicable to special or particular circumstances or conditions." The board may take such action when, in its discretion, it appears to be in the public interest to do so.⁸

Power of Civil Aeronautics Board to Issue Tariff Regulations

The authority of the Civil Aeronautics Board to specify the form and manner in which air carriers' tariffs must be published, filed and posted is derived from the section of the act which gives the board the power to establish such general or specific rules, regulations and procedure, pursuant to and consistent with the act, as it may deem necessary to carry out the provisions of the act and to exercise its duties.⁹ These general rule-making powers, when read in conjunction with the responsibilities and jurisdiction of the board with respect to the tariffs of air carriers, are the statutory foundations upon which the administrative regulations of the Civil Aeronautics Board are erected.¹⁰

Tariff Regulations of the Civil Aeronautics Board

Acting under its delegated powers, the board has issued detailed instructions to all air carriers subject to the act. The instructions specify the form, contents and arrangement of tariffs; their issuance, supplementation and cancellation; tariff, filing and posting regulations; the authorization and concurrence in tariffs, and other detailed regulations.¹¹ All tariffs and supplements must conform strictly to these regulations.

It is not necessary to discuss in detail the board's tariff regulations. Generally, they are based upon the tariff circulars of the ICC governing the tariffs and schedules of the common and contract carriers subject to the Inter-

⁸ Ibid., Section 403 (c).

⁹ Ibid., Section 205 (a).

¹⁰ Ibid., Section 403 (a).

¹¹ Interstate Commerce Commission, Tariff Circulars No. 20 and MF No. 3, in particular.

state Commerce Act.¹² The regulations of the board are somewhat less detailed because the tariff publication problems of commercial airlines are much less complex than those of railroads and motor carriers. Further, there are no regulations governing publications of contract carriers by air since the Civil Aeronautics Act itself does not recognize them, and therefore gives the board no power of economic regulation over them.

In publishing their tariffs, the carriers are given the option of using either book, pamphlet or loose-leaf forms. The pages must be uniformly 8½ by 11 in. in size, except in the case of tariffs pertaining only to transportation of property by air. Here a size of 9½ by 11½ in. is permitted, but is not compulsory. They must be prepared by some durable process such as printing, planographing or stereotyping. Each tariff must be filed under a consecutive CAB number of the carrier or of the tariff publishing agent whose services the carrier employs.

Each tariff and supplement must be identified on its title page by its CAB number, and must show the types of rates contained in it, the points or territories between which the rates apply, the date of issue and the effective date, the identification of the officer or agent issuing the tariff, and the expiration dates of any rates or changes published to apply only for a limited time.

The body of the tariff is required to contain, in the order named, the following types of data:

1. A table of contents.
2. A list of participating carriers, alphabetically arranged, showing the authority granted by each to the person issuing the tariff.
3. A complete index, alphabetically arranged, of articles upon which rates are named.
4. Alphabetical indexes of points of origin and destination.
5. An explanation of the reference marks, symbols, and

abbreviations used in the tariff.

6. Explanatory statements with respect to the application of the rates.

7. The general rules governing the tariff.

8. A statement of special or extra charges, such as those for excess baggage or sleeper service.

9. A statement of the rates, fares or charges applicable to, from or between the points of origin and destination named in the tariff.

10. The routes via which the rates or fares are applicable.

The rates for the transportation of property, other than excess baggage, must be shown separately from those for the transportation of persons. Each must be shown explicitly on an airport-to-airport basis. The description of goods upon which specific rates are established must be specific itself, and the rates on those goods may

not be extended to include analogous commodities.

Routes must be stated in such a manner that they can be definitely ascertained, and passenger tariffs must definitely provide that the rates which they contain apply only over the routes which are specified in connection with the rates.

The carriers are permitted to publish separate tariffs containing rules governing other tariffs. This is subject to the limitation that no rate tariff may ever refer to another rate tariff for its rules. Thus, if a separate rules tariff is used, it must contain rules only; but any desired number of rate tariffs may be governed by it. Rate tariffs governed by separately published rules and regulations must indicate this fact on their title pages.

Changes in Tariffs

Changes in air carrier tariffs are known as amendments; and they may be made at any time, subject to the restriction that a notice of thirty days must be given unless the board grants permission to publish upon shorter notice. Amendments may be made for the purpose of removing or changing existing material, or to add new material. They may be made in any one of three ways:

1. By "reissuing" the tariff—that is, by filing an entirely new tariff which contains all of the unchanged material of the old one as well as a complete statement of the new (amended) material, and which bears the next CAB number in its series.
2. By issuing a supplement to a book tariff.
3. By reprinting the affected page of a loose-leaf tariff.

Because a rate or rule which has been changed cannot be in effect at the same time as the previous one which it replaces, any amendment must specifically cancel the obsolete rate or rule and show the new one at the same time. The use of uniform symbols is required to indicate the nature of any change.

Amendments which are effected
(Continued on Page 82)

The Wirebound Institute

A UNIQUE educational program to better qualify its industry personnel to meet and overcome the problems presented by the forthcoming era of business competition and to win new markets for its products has been approved and is about to be launched by the Wirebound Box Manufacturers Assn. Formulated over a period of many months by the organization's salesmen's committee, the program is described as "a course of training in wirebound designing and specification techniques, by which students will truly qualify for recognition as engineers in the wire-bound field."

It is believed that this is the first time any trade organization in any field has sponsored an industry-wide program of this type. The Wirebound Institute will consist of 30 correspondence course lessons divided into three sections, plus a series of regional "clinics." The texts and questionnaires for the first section, entitled "The Design of Wirebound Boxes," have already been prepared by Harry A. Walsdorf of the Package Research Laboratory. The second section will be "Testing the Performance of a Wirebound Box in the Laboratory," and the third will be "Quality Control as It Affects Wirebound Box Performance."

Enrollment in the institute will be permitted to fulltime, regular employees of wirebound manufacturing members of the WBMA and to employees of wirebound machine manufacturers. Enrollment must be endorsed by the applicant's employer. Successful completion of the course will qualify the student to receive a certificate designating him as a "Wirebound Box Engineer."

¹² Civil Aeronautics Board, Section 224.1 of the Economic Regulations, as amended July 10, 1940, March 20, 1942 and June 4, 1946.

PROGRESSIVE PORTS

(Continued from Page 29)

One of the biggest and most important projects for modernization in the city lies in the plans for improvement of Municipal Pier No. 80 South Delaware Wharves. Three million dollars will be spent to widen its existing substructure and erect a double-deck superstructure. When completed the pier will accommodate four large ships at once and provide 415,000 sq. ft. for the handling of cargoes. The substructure of the pier is about 1,000 ft. long and 280 ft. wide, with 280 ft. piers flanking it on either side.

Double-track railroad sidings on both aprons will provide shippers with the opportunity to load and unload from two rows of cars at once, greatly speeding the flow of traffic.

For truck handling, an interior up and down ramp, about 300 ft. long, with a maximum grade of ten percent, the only one of its kind in the port, will provide quick and easy access for efficient truck loading and unloading. Consideration has also been given to the widespread use of trucks in pres-

ent day shipping operations in laying out floor plans for the pier, and columns will be 40 ft. apart to permit even the largest motor vehicles easy maneuverability.

Platform elevators will speed up and down handling. A safety feature will be a modern sprinkler system.

Besides this construction, "the most modern pier along the Atlantic Seaboard" as its planners call it, projects of Philadelphia's Department of Wharves, Docks and Ferries call for the construction of new municipal piers and wharves at a cost of \$20,700,000; a new Municipal Pier No. 2 to replace a present pier below Market St. in the center of the waterfront, to cost \$1,272,000; the modernization of several other municipal piers for five million dollars; and new dredging plant units to cost \$1,115,000. These plans, besides being part of the overall project for the beautification and modernization of the city for its Centennial celebration, will help to maintain Philadelphia as one of the major distribution points of the nation.

The Philadelphia waterfront shows a number of large piers and wharves, besides a greater number of smaller ones; still others will be constructed at a cost of over 20 million dollars.



Interstate Commerce Law

"Interstate Commerce Law, Selected Cases and Questions for Study" is the title of a 49-page syllabus, published by The Associated Traffic Clubs of America. This is a valuable contribution to the subject and the committee, headed by G. Lloyd Wilson, which prepared it deserves congratulations. It is useful not only to students, but also to those with experience in the field of traffic. The booklet carries a comprehensive table of contents, alphabetically indexed, as well as a complete list of the cases cited. Following a two-page foreword and explanation it presents under appropriate headings questions dealing with the Interstate Commerce Act supported with references to applicable cases. As an example, one question reads: "What is meant by the 'continuity of interstate freight movement'? Illustrate with an example." The manner in which the questions are presented make it necessary for the reader to think along constructive lines.

Included in the text is a sample page of case notes to be used in answering the questions. Quoting from the booklet: "The cases presented in this syllabus present a blazing through the forest of interstate commerce law to help students to find their way. No attempt has been made to state what the cases hold—that is for the student to discover by the study of the case. This is no small task—but there is no easy way to study law—or any other subject. There is no alternative to individual effort. The opportunity is presented for those who have the wish and will to take advantage of it."

This particular codex is one of a series of publications issued from time to time by the Associated Traffic Clubs in its overall plan of education in relation to a knowledge of traffic and transportation law and allied subjects.—Henry G. Elwell, Traffic Consultant.

New Publications

HANDY HELPER, guidebook for shipping rooms, including correct export packaging procedure, rules on marking for export and domestic markets, etc., descriptions of stenciling equipment, gummers, and shipping room equipment manufactured by Dia-graph-Bradley Industries, Inc. Obtain from said firm, 3755 Forest Park Blvd., St. Louis 8, or any local distributor.

A MARKET ANALYSIS FOR BUSINESS AND INDUSTRY and 100 concise reports on technical developments in industry from the weekly New Business Developments, two brochures, including material on the new setup in purchasing power, direct mail, market research, sales planning and new products and techniques. J. J. Berliner & Staff, 212 Fifth Ave., New York 10, N. Y.

BULLETIN NO. 120-A1 contains vital information on laying out a belt conveyor system and features of Robins Idlers, such as one-shot lubrication, triple grease seal, etc. Robins Conveyors Div., Hewitt-Robins, Inc., Passaic, N. J.

A SKEPTIC AT A BOARD MEETING

(Continued from Page 59)

"But," protested Reed, "I'm not a member of any of the boards."

"That makes no difference," McCormack insisted. "As proof I'll read the following, which is included in the printed program for every meeting. 'All board meetings are open to the public. Producers, receivers and shippers of freight and other representatives of industry, including the railroads, motor carriers, public utilities, air lines, steamship lines, express companies, and the public generally are invited and urged to attend.' At each meeting open discussions regarding transportation questions take place between the shippers and the railroad men, although the latter have no vote in the affairs of the board. As a consequence of these debates, matters are adjusted which otherwise might have to be settled before the commission or the courts. It is worthy of note that after the formation of our board, and the other twelve, there were no country-wide car shortages until near the end of World War II when lack of steel prevented the building of sufficient replacements."

"One thing is not clear to me. How do the rail carriers fit in at the board meetings?" Reed inquired.

"I should have told you that the quarterly sessions in most cases cover an interval of two days. In the morning of the first day the executive committee, the freight car efficiency committee, and the other committees of the board hold their meetings. At the same time the operating officials of various railroads, serving on what is known as the railroad contact committee, hold a separate meeting of their own. During the afternoon the executive committee of the board and the railroad contact committee meet jointly to adjust complaints, etc., preparatory to the general board meeting of the next day."

As the outcome of the talk between McCormack and Reed the latter arranged to attend the next

quarterly meeting of the board. On the appointed date the two men met at the hotel where the board sessions were being held. After the usual greetings McCormack said, "We had an interesting get-together yesterday at the joint session of the executive committee and the railroad contact committee. For a time, verbal sparks flew between the two, but at the close peace sat enthroned. Now let's register and join the crowd before this morning's meeting opens."

But, as Reed and McCormack strode into the assembly room they found that the first session had started. The president of the board was just finishing his opening remarks: "The peacetime business reflected today in the heavy carloadings is an omen which we feel is going to bring to us unsurpassed density of traffic in the months to come. We have a serious job ahead of us."

The president then called on the chairman of the executive committee who gave a résumé of the proceedings of the previous day. This was followed by a committee chairman giving a record of the anticipated carloadings by shippers in the board's territory for the next three months. "You see, Bob," whispered McCormack, "this information provides the railroads with a basis on which to estimate the car requirements of shippers over the quarterly period. It's one of the means by which car shortages are controlled."

Next on the docket came the report of the chairman of the freight car efficiency committee. He began by saying, "For the benefit of those who may not be familiar with the work of the committee, permit me to explain the scale by which we measure the efficiency of shippers/consignees in the unloading of freight cars. We use 85 percent as the 'dead-line.' In other words, shippers/consignees, collectively, in the board territory are expected to unload 85 percent or more of the cars delivered to them before the expiration of the 48-

hour free time period. Well, we are pleased to state today that for the quarter just closed our shippers/consignees show an average unloading efficiency of 87.3 percent. This means that out of every 100 cars placed for unloading in our territory during the past three months less than 13 cars were held under load beyond the 48-hour period. It is also pleasing to announce that in the last three months shipper/consignees at several cities in our jurisdiction unloaded 100 percent of their cars before the end of the free time period during one or more weeks."

McCormack nudged Reed and in a low tone remarked, "Ever since early in 1942 this efficiency committee, made up of a number of local units composed of shippers in numerous cities, has been functioning by urging shippers/consignees to quickly load/unload freight cars. The committee has real accomplishments to its credit in inducing shippers/consignees and the railroads to cooperate."

In the meantime the chairman had continued with his message which he closed with reference to what had been done at the committee meeting of the preceding day. A representative of the railroads then presented an outline of what the rail carriers were doing to overcome transportation difficulties caused by the bad winter weather then prevailing.

The president then introduced the chairman of the board's freight loss and damage prevention committee. Among other things the chairman mentioned that his committee was cooperating with the rail officials in an effort to eliminate damage to rugs and to rolls of paper caused by railroad labor gangs using hand hooks when transferring shipments. Reed quietly commented, "It's obvious that the board is acting in the interest of shippers/consignees." McCormack nodded his head in assent.

The report of the chairman was well received as indicated by the warm discussion relating to claim prevention which then took place among the assembled members. When that theme had been disposed of, a railroad official talked on the national transportation

situation. In conclusion he pointed out: "Car shortages are disturbing to the railroads, as well as to the shipping public, but we will meet the challenge of how to get a little bit more out of the use of the cars."

The next speaker was the chairman of the board's legislative committee. He outlined the terms of a number of bills introduced in Congress which related to transportation, including the so-called Bulwinkle Bill. As he finished his account he moved that the board approve the bill. His motion was duly seconded and carried.

Thereupon the chairman of the less carload transportation committee was requested to submit his report. Among other things he said, "At yesterday's meeting of our committee it was the opinion of most of the shippers that, although still spotty, there is an improvement in the less carload service between the larger stations. Nevertheless, there is still room for betterment at the smaller stations, particularly where more than one transfer is involved."

When the luncheon activities were over, the afternoon session of the board was called to order. At this time reports were received from the special committee on express matters, as well as from the special tank car committee, the palletizing committee, and the membership committee. This last named committee announced a gain of 103 new members in the course of the previous three months. Then followed comments by the general chairman of the railroad contact committee, and also by the district manager of the Car Service Division of the railroads.

It was 4:30 as the president arose and stated, "Gentlemen, that concludes our docket and, therefore, I will entertain a motion to adjourn."

As they filed out McCormack asked, "Bob, what is your view now as to the usefulness of the Shippers Advisory Boards?"

"From today's experience," acknowledged Reed, "I agree that the boards are making excellent progress in their cooperative efforts with the railroads."

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"Honeycomb" is one of the new light-weight sandwich laminates which has widespread application in many diverse fields, including rail and air transportation.

By JACK GEDDIE

Special Correspondent

THE weight-performance factor in almost any sort of construction is important. In the field of transportation—particularly rail—it is doubly so. Designers of railway cars must always bear in mind the material which will achieve the best result in establishing a norm between strength and weight.

Wood and metal, common construction materials, do not conform consistently to designers' requirements, for wood often requires great bulk to achieve the desired strength, and metal frequently presents overly sufficient power in relation to weight. Thus the field of sandwich laminates, now emanating from the sphere of experimentation, is becoming a boon to the engineer seeking balance between strength and weight, and is presenting as never before in construction history materials of great lightness and of equally great strength.

Out of the field of sandwich laminates has risen a material

which now gives the designer a means to approximate more closely an ideal strength-weight condition, allowing structures of which weight proves negligible but of which strength is enormous. Following the war, this material, "Honeycomb," manufactured by United States Plywood Corp., found its way into many phases of construction, one of which is the manufacture of aircraft. Glenn L. Martin, Consolidated, Grumman, Boeing, and other firms are using Honeycomb as partitions and other structural members.

Another phase of transportation construction in which Honeycomb one day will have a major role is the manufacture of railway cars. Tests now are being made of Honeycomb by leading railway car manufacturers, in the designing of floors, partitions, and other structural elements requiring great strength but at the same time necessitating lightness.

Nature's bee gave the hint for

the form and the name that Honeycomb would take. The core of this material resembles the bee's honeycomb. It is made of resin impregnated sheet material cured and assembled into the form of nested, hexagonal-shaped cells. Of all the sandwich laminates, Honeycomb quickly has assumed the lead as the most important weight-strength construction material.

Ultimate uses determine materials selected for the manufacture of honeycomb core. For instance, low cost cotton sheeting or paper impregnated with phenolic resin is used with greatest effect for most commercial applications. A Fiberglas cloth impregnated with a polyester resin is used for electrical functions. For fire resistance, an asbestos paper with phenolic resin would be selected. Cores with a 3/8 to 7/16 in. cell size measure across flats are now manufactured on equipment set up by United States Plywood Corp. However, if it is necessary for

(Continued on Page 112)

PAPERBOARD PROSPECTS

(Continued from Page 25)

between the farm and the dinner table. In the future, we undoubtedly will see surplus leaves, etc., discarded at the source, and the goods packaged in such a way that if kept under refrigeration throughout their life, they are eventually served in a farm-fresh condition. In the same way we waste a lot of space in shipping bones and suet across the country. The meat industry is now giving a lot of attention to the prepackaging of their product either fresh, or quick frozen with the bones and surplus fat removed.

There are, of course, a lot of other items that will use greater amounts of paperboard in packaging. For example, only about seven percent of the nation's milk is now in fibre packages. This percentage would have been much larger if the pulp had been available. We are also seeing a considerable use of fibreboard containers for the shipment of "massive" merchandise such as electric refrigerators, washing machines, stoves, furnace burners and even the kitchen sink. Expendable paper pie plates are now being produced that go right through the oven in the baking process and can be discarded by the housewife without a deposit. Soft drink producers would like to use more carry-home packages for six bottles, as this not only increases sales but also helps to get the empties back.

These and many other proposed uses for paperboard make the industry feel that its future is a bright one and that it will have no trouble in disposing of the new tonnage now coming into the market.

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GUMMED TAPE

(Continued from Page 23)

ditioned and correctly applied, can only be accomplished by tearing the carton skin down to the line of glue penetration.

As far as can be determined, the first attempt to mechanically moisten a strip of dry gummed tape for package sealing was made in Austria many years ago. Although this early endeavor was mechanically unsound, it did indicate the practicability of tape sealing packages.

This Austrian device moistened the tape with a felt wick or pad. However, in a relatively short time, gum scratched from the tape in the dispensing operation would accumulate on the wick. Drying, this gum formed a crust which prevented water from reaching subsequent strips.

Slight improvements over the Austrian models were soon offered by American manufacturers, including Thomas A. Edison. Also employing a felt wick moistener, these new models, too, failed to perform a satisfactory moistening job.

Roller type moisteners were next introduced to gummed tape users. The tape is moistened as it is pulled over a cylinder which revolves in the water tank. The roller type moistener is more satisfactory than a wick type moistener because it delivers more water and is simple to maintain. However, because of lack of proper tension and water control, tape moistened with one of these machines often becomes soaked and slippery through the center, while the ends remain dry.

In 1922, the first hand-pull tape sealer with a brush moistener was introduced. The principal of application in this type of machine is similar to the stroke of a painter's brush. Adequate water is distributed evenly over the complete gummed surface of the strip, eliminating "dead" spots which cause blisters and "popping" tape.

Not because of their basic de-

sign, but because of the manner in which they are often used, pull moisteners are not entirely satisfactory for the proper conditioning of gummed tape. Particularly during rush hours, the packer tends to pull out the strip in an upward direction, failing to obtain the required pressure and even distribution of water over the gummed surface. Better results can be had when the machine is placed at the packer's eye level. Then he has no alternative but to pull the strip down over the brush or roller.

The proper conditioning of gummed tape is 100 percent dependent upon the packer when pull-moisteners are used. Semi-automatic machines reduce this dependency approximately 40 percent. With the semi-automatic type of sealer, tape is not pulled manually, but pushed across the moistener by hand action either on the handle or, more commonly, on a sliding feed bar. Regardless of a packer's inexperience or the rush conditions under which he is sealing cartons, correct and constant pressure on the full width of the tape, when it passes over the moistening unit, is automatically maintained by means of a freely pivoted gravity pressure plate.

A number of semi-automatic machines are equipped with an auxiliary water fountain which reduces "time-outs" for tank refillings.

A few semi-automatic sealers are equipped with automatic water control. A simple set screw adjustment permits regulation of the amount of water flowing from the auxiliary water fountain into the moistening tank to maintain the proper level. This adjustment is very important because it allows a shipper to compensate for dispensing speed and other variable factors.

For example, changes in operating temperature necessitate adjustment in water supply. Tape

requires less moisture in hot, humid weather than it does during cold, wintry months. The explanation is obvious. In hot weather the glue becomes pasty and sticky and figuratively "sweats" from the kraft paper. Less moisture is required to dissolve the sticky glue. In winter, the glue hardens and more moisture is needed to break down the hard, solid mass for proper conditioning. No sealing machine can possibly condition gummed tape to its maximum adhesion under all operating speeds and temperatures without adjustable water supply control.

Brands of gummed tape vary widely in adhesive strength (Charles G. Weber, Senior Technologist, National Bureau of Standards, reports a variation of almost 300 percent among 21 different tapes tested.) To overcome this problem in securing uniform adhesion, automatic moistening control machines were developed. These machines are equipped with adjustable, automatic pressure control as well as with adjustable, automatic water supply control.

The pressure unit can be preset to provide the exact pressure required by each of the different glue formulae and tape weights. A pivoted pressure bar then automatically maintains uniform pressure, assuring correctly regulated flow of water from moistener to tape at any dispensing speed.

Automatic moistening machines have created higher efficiency in operation and reduced the time, costs, and labor of sealing with gummed tape. Most sealing hazards, particularly occurring during the late afternoon and peak season rush periods, are eliminated by the automatic moistening machine. The machine itself, irrespective of the operator's skill or care, assures maximum adhesion under all conditions and provides positive protection for shipments.

Many semi-automatic and all automatic moistening control machines are equipped with a measuring scale. These scales allow the packer to determine accurately the correct length of tape to dispense for the carton to be sealed. Sealing regulations require at least a 2½ in. overlap of tape strip at

each end to "anchor" the strip and protect corners. Greater overlap adds nothing to the strength of the seal and is simply wasted. All automatic moistening control machines are equipped with single multiple stops which can be set for pre-determined lengths when multiple strips are required.

To obtain full advantage of the measuring scale, shippers should instruct their box maker to imprint their shipping containers with the required lengths for the short and long sealing strips. Box manufacturers as a rule offer this service at no extra charge. The printed figures eliminate the need for guessing measurements when dispensing tape to seal the carton.

Most containers require six strips of tape for proper sealing. This means 12 tape ends. Hit or miss methods usually waste about 3 in. of tape on each tape end—a full yard of needless tape on each box that will not give additional security to the contents. Multiply this by the number of boxes shipped annually in any particular instance, and a realization of the dollars and cents loss is forcibly brought home. Efficiency saves about 35 percent of the tape used in a shipping room.

A shipping container is no stronger than the results of the closure method employed to seal it. The particularly vulnerable points of any container are the center breaks and horizontal end scores. Therefore, to obtain maximum efficiency from a container and give the product the full protection it deserves, it is highly desirable to provide this additional strength at these points.

Duplex reinforced and string inserted gummed tapes are also available to provide additional strength when needed. Various tests have proved that 25 percent additional sealing protection is obtained when the overlaps of end strips are applied horizontally on the container rather than vertically.

For added strength and fast, tight closing, for an excellent advertising medium, gummed tape is coming into its own in package preparation.

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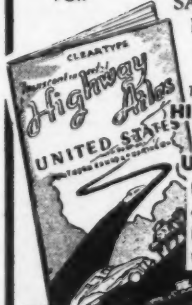
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TRUCK COSTING

(Continued from Page 41)

is usually charged on a pro-rata basis and if certain trucks require more supervisory attention, the costs should be apportioned accordingly. The annual insurance and depreciation expense for each truck is divided by 12, and charged up monthly on the truck costing form.

Remember that cost accounting is not an exact science like mathematics, nor is any form of accounting, for that matter. One sometimes must make arbitrary decisions on estimates, but if the estimates are based on experience figures, they will be fairly accurate. Cost accounts do not balance like financial accounts. You can tell to the penny how much your payroll is for the period but you can't be so accurate when costing operations. Yet this is no reason for laxity in costing, because you can come near enough to get a good perspective of current costs and how they compare with last month's or last year's costs. That is the important thing—the comparative information that costing brings to attention. Cost accounts will show whether costs are going up or down or moving along on an even keel. The direction in which business is moving and why is the information top management needs to enable it to operate profitably.

To analyze truck costs intelligently, one must have enough facts. The amount of money spent is not enough, otherwise the financial accounts would suffice, because they give this figure. The cost per mile is a helpful aid to a sound appraisal of truck costs. This figure is not obtainable from the financial accounts. You must use a special costing form to get it, but even this information isn't enough to do a good cost analysis job. You also need the cost per load unit and the cost per hour. For example, the operating cost per mile may be low on some trucks but the cost per load unit high because trucks are not loaded to capacity. Re-routing deliveries

or a revised program on loadings would be more likely the solution to lower costs. Or the cost per mile may be low but the cost per hour high because drivers, for one reason or another, are taking too long to make deliveries. A check-up on the drivers would be more beneficial here than an overhaul job on the trucks to improve their operating efficiency.

Some organizations record the cost per ton, call, trip, route or package. It depends upon requirements. Adjust the costing system to fit your requirements. Trucking concerns usually cost by the hundredweight, the hour and the mile, and unless unusual conditions exist, the average industrialist can use these costs satisfactorily. If you use the cost per package, it may be the barrel, box, carton, crate, coil, liquid container or bale, depending upon how products are packed for shipment. If shipments cover many different sizes, shapes and package forms, it is best to cost by weight because the costing process will be too complicated. Moreover, for anal-

Handling Accessory



The versatility and usefulness of lift trucks can be increased tremendously by the use of accessories. When the handling of bulk material must be speeded, this dump shovel, equipped with pneumatic snubber and easy to roll dump lock, can be attached and in operation within ten minutes. The shovel illustrated is manufactured by Allen Industrial Products Co., Battle Creek.

ysis purposes, the weight will give just as good results. The driver's wages should not be included with the truck operating costs per mile because this will distort the figures when comparing the operating efficiency per truck. However, the driver's wages are part of truck transportation cost and should be listed separately and considered when computing the truck cost per hour or load unit. Include the compensation insurance and social security taxes with driver's wages.

If management knows what it costs to transport production per hundredweight, per hour, per mile, it can determine which size trucks are the most profitable, whether light pick-up trucks would replace some or all of the larger trucks to the benefit of profits, whether it would be advisable to discontinue trucking and turn it over to a motor transport company, whether too much time is spent on certain trips or hauls, etc.

Trucking companies require a more detailed cost accounting system, but basically they utilize the same formula. They break down their costing elements to line-haul operations, pick-up and delivery operations, terminal operations, which include billing, collecting, loss and damage expense and terminal administrative expense. General administrative expense is superimposed upon these three costing groups on the basis of their direct expense, which is somewhat similar to the allocation of general administrative or selling expense to production. For example, if line-haul costs are \$10,000, or 40 percent of total trucking costs, which we'll say are \$25,000, then the line-haul costs are charged with 40 percent of the administrative expense, or \$1,200, if this expense is \$3,000, making total line-haul costs \$11,200. If 500,000 lb. are hauled, or 5,000 hundredweight, then 5,000 divided into \$11,200 will give the cost per hundredweight, or \$2.24. This serves the trucking company as a guide to rate making, planning and cost analysis. Non-trucking companies do not need truck costs as a basis for rate-making, and so they do

(Continued on Page 77)

RAILROADS' ROLE

(Continued from Page 31)

over the surface of the mounting panel or frame.

Generally, however, the anchored load is rigid. Before it is used, be sure that the mounting lugs or brackets are strong enough to support the load. The holes must be large enough to take bolts and strong enough to secure the load. This may all sound simple, but remember that in this pack all the strain is concentrated at the mounting points. Strange things happen.

Presuming that the mounting points are strong and that we have reinforced or dismantled any parts or projections that are not as resistant to shock as the main assembly, our next consideration is the pattern made by the center or centers of gravity and the plane of the mounting points.

Through the use of vector analysis, we can apply measurements and calculate these forces tending to pry the mounting points loose from their base.

It is also of great importance that the strength of the container be ample to support the article at the mounting points.

Except in the case of very heavy, skid-mounted loads, no one can be sure on what face the package will rest during shipment. In fact, if we did, we would have little assurance that at some point our pack might not be rolled end over end as an easy way to move it.

Every panel of the pack has to be considered the bottom, and the load must be analyzed from every angle. Blocking points available should be evenly spaced so that each block has approximately the same load to support. We must not be fooled by the modern streamlined housings, but get to the skeleton of the article and determine whether it will stand a small point of contact or whether a large contact is needed to cut the load per square inch.

"Divide and conquer" is as good a rule in packaging as it is in warfare. It is usually better to have several points of support than a very few. The protection

is not only to the surface of the merchandise.

Speaking of the container, it is just as important to have our points of contact at the strong points of the container as it is to have them at places where the merchandise is strong. This will mean avoiding direct pressure in the center of panels of corrugated, wirebound, and cleated plywood boxes. At least, it will dictate that you reinforce these points if such arrangements cannot be avoided.

In other words, do not lose track of the fact that the sides of containers often function as beams and the relationship of length of span, width, and depth of beam must not be ignored.

The points where blocking and bracing touch the merchandise and where they touch the container are seldom conveniently located with regard to each other. The job, then, is to span these gaps with engineered structures made from wood, corrugated board, or paper-board, depending on the size and weight of the load.

The structure should consist of an arrangement of columns and beams with an occasional compression member and perhaps a steel strap in tension. Although each industry, paper or wood, uses terms such as rat trap pads, spacer pads, battens, cleats, etc., each piece performs a simple engineering function. It is the packaging engineer's job to analyze each support, load, and span to avoid being fooled by the outward appearance of strength.

It is not difficult to approach a wood blocking and bracing job this way, but corrugated board often performs several functions at the same time and it is easy to overlook the simple function of each part.

It is through the correct application of engineering principles that we will have better and cheaper packages, and this in turn will have a direct bearing on the reduction of loss and damage claim payments.



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BASING POINTS

(Continued from Page 19)

charges and sells his wares at a uniform price regardless of the location of the buyer. It is obvious that a very large part of the American economy has been built up on this system. On the whole it has been regarded as a very satisfactory way of doing business. It naturally involves an equalization, a balance in making the supporting freight rate structure which has been established by the manufacturer. There is no doubt that in the end the customer geographically close to the manufacturer, perhaps right in the same town where the manufacturer has his plant, carries some of the cost of the freight charges which enable the customer 3,000 miles away to get the goods at the same price. But it should be remembered that all the customers in the same locality with the manufacturer are charged the same price, whether there are a dozen such customers in the city or 10,000.

It is undeniable that the theoretically ideal plan of operation would be to charge each customer the base price, the net f.o.b. plant price, plus the actual fractional increase of freight or transport charges as the distance of carriage expands. On the other hand, such a system would require the addition of more workers, more facilities, more employment of people, space, machinery, and supplies; and it would undoubtedly increase the costs of the customer in a similar manner by reason of the added expenses of keeping the records to operate the system which would make each customer responsible for the payment of his individual freight charges. It would seem therefore that uniform pricing, where it operates universally and is entirely satisfactory, and has been woven into the warp and woof of the economy, constitutes a justly balanced system. What would be the added cost in uniform pricing would apparently constitute the same added cost in the mechanics of recording and handling the disbursement of the freight charges individually.

It is understood, however, that the Federal Trade Commission regards uniform pricing as essentially illegal. It does not quarrel with the sound sense of the present adjustment and operation, but it is said that it does hold that the uniform pricing system is a violation of the Clayton Act, purely as law, and in a legalistic sense. It is regarded as possible, therefore, that it may actually attack the structure of uniform pricing on account of its legalistic impropriety, unless Congress reforms its law. After all, always bear in mind that the Federal Trade Commission, like the Interstate Commerce Commission, is an extension of Congress itself. It is not an administrative or executive agency. It is in effect just as much a working part of Congress as are the staffs employed by the various committees of Congress, which do the detail work imposed upon the Congress and the committees. It obeys its immediate employers, the Congress. For this reason it apparently will eventually be necessary for Congress to make a new law which will enable the FTC to accept the uniform pricing system as entirely legal and juridically justified. Congress naturally will make such law only if the business community of the nation wakes up and demands it. Since the system is of essential value to the vast numbers of smaller business men and units the demand for the reform should logically come from them, and is expected to.

It is wise to understand that the FTC thinks the recent Supreme Court ruling will eventually wipe out all use of the basing-point system. The present case was adjudicated after 11 years of effort in connection with Section 5 of the Federal Trade Commission Act and Section 2 of the Clayton Act as amended by the Robinson-Patman Act. The present use of the basing-point system is controlled by the decision of the Supreme Court in the so-called

Corn Products and Staley cases, which leaves sellers free individually to absorb freight in order to meet a competitor's low price. The FTC itself says that the most recent decision "has a definite and substantial impact upon the status of similar systems of identical delivered prices used by a number of heavy goods industries. In the aggregate the commodities priced under such systems are important factors in the cost of housing and other construction and of semi-fabricated products used as raw materials in a host of other industries."

Similar decisions are awaited in pending cases involving steel products, book paper, etc. The Supreme Court also handed down a decision ordering the American Refractories Institute and its 37 members to cease the use of a price combination involving freight equalization and a delivered price system, as well as a zone delivered price system. It also is expected that the present hearings charging steel producers with collusive price fixing through the use of the basing-point system will be settled as the result of this decision. It is anticipated that more mills will withdraw their pipe and other products from markets distant from their plants. The freight absorption practiced by the automobile industry also is expected to be barred. What effect the present situation will have on decentralization, so urgently desired by the national military establishment, is not yet clear. The steel manufacturers have said they cannot decentralize by reason of the excessive cost. The heavy goods producers who distribute on a national basis are expected to find it difficult to compete with smaller local producers; the latter do not have the disadvantage of long freight hauls. The producers with scattered plants are expected to have marked advantages in the immediate developments ahead.

It also should be noted that the decision does not involve the ICC, nor does it involve freight rates. It is fundamentally a problem of pricing, and the use of freight rates in fixing prices. Freight rates themselves are untouched.

TRUCK COSTING

(Continued from Page 74)

not cost this expense for the purpose of pricing or determining profit, but they do need accurate truck costs to control these costs properly and keep handling expense at a minimum.

The accompanying truck costing form can be used by small and large companies, by warehousemen and other truck owners. The reader should adjust it to suit requirements, retaining the fundamentals. The best recording medium is a card about 6 by 8 in. Use two sides. The information recorded on this form is taken from the driver's daily reports, from the shipping manifests, the supervisor of the company garage and the company books. The interest on the money invested in a truck is included to give proper comparative analysis. If a truck costs \$4,000, and another \$6,000, the recording of interest on investment plus depreciation will

give some idea of what price trucks to buy to get most economical results. This form gives a comprehensive and condensed record of the cost of operating each truck per mile, hour or load unit. It may facilitate matters if you number the trucks. The speedometer reading for January should be entered at the beginning of that month in the column provided, then the reading would be entered at the beginning of February, the difference between these two recordings would be the mileage for January. Divide this mileage into the truck costs to get the operating cost per mile. The cost per load would be the hundredweight or ton divided into the truck cost. The cost per unit mile is arrived at by multiplying the units carried by the mileage, the result divided into the total truck cost.

Interplant haulage can also be costed on this form.

Export Licenses

The government traffic section of the American Trucking Assns., Inc. has recommended that motor carriers require evidence of an office of International Trade export license or of warehousing arrangements on commercial shipments for export so as to avoid the possibility of being turned back at the port. E. F. MacMillan, chief of the ATA section, pointed out the new licensing regulations of OIT and the Commerce Department require validated licenses for all commercial shipments destined for Europe and certain contiguous areas. A motor carrier handling an unlicensed shipment, he said, might be unable to unload at the pier.

"Under operation of an Office of Defense Transportation order (ODT 16-C, revised, of Feb. 16, 1948) and the export

control program," he declared, "railroads decline shipments for export which are not covered by the required OIT export permit or license, unless such shipments are destined to a warehouse in the port area, including terminal railroad storage, where prior arrangements have been made for their receipt. In the absence of similar OIT controls over motor carriers, there is no official safeguard against non-licensed truck shipments. Therefore, there is the possibility of a considerable quantity of unauthorized goods for export being found in transportation by motor carrier. The problem here to the carrier is that he may find himself in the unfavorable position of being unable to unload at the piers because of the absence of export licenses covering the property he is transporting."



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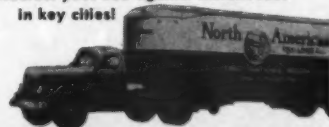
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TRANSPORTATION

Things You Can Do

YOU CAN compel the Public Service Commission to consider all factors for rate making purposes. For illustration, in *Public Service Commission v. Indianapolis Railways, Inc.*, 70 N. E. (2d) 841, Ind., the higher court held that the Public Service Commission in determining the fair value of a carrier's property for rate fixing purposes may utilize the costs at the time of construction or purchase, the cost of bringing the property to current state of efficiency, and the reproduction costs of current prices, less depreciation.

YOU CAN receive compensation under the State Workmen's Compensation Act based on "total disability" if you cannot do "work of any reasonable character." In *Gilmore v. George W. Garig Transfer, Inc.*, 33 So. (2d) 99, La., an employee of the George W. Garig Transfer, Inc. was injured. He sued for compensation and proved that he was "incapable of doing work of any reasonable character." The higher court decided that he could recover compensation based on total disability.

Things You Can't Do

YOU CAN'T avoid paying compensation to an employee injured while being transported at your expense. For illustration, in *Barrington v. Johnn Co.*, 181 Pac. (2d) 166, N. M., the testimony showed facts as follows: one Barrington was furnished transportation back and forth daily to work from his home. One day he was killed. The higher court was asked to decide whether Barrington's wife could recover under the State Workmen's Compensation Act. The court held in the affirmative, saying: "The defendant (employer) agreed to, and did furnish transportation to Barrington from and to his home as a part of his contract of employment, and the injury and death of the workman arose out of and in the course of his employment."

YOU CAN'T win a suit against a city ordinance which designates a route for motor vehicles. For example, in *Blumenthal v. City of Cheyenne*, 186 Pac. (2d) 556, Wyo., a city ordinance was litigated which provides that commercial motor carriers passing through the city must take a certain route. The higher court refused to hold the ordinance void.

WAREHOUSING

Things You Can Do

YOU CAN avoid paying wages specified by the Fair Labor Standards Act to employees who use or handle the

goods in the state where stored in a warehouse, although the goods were shipped from outside the state. For example, in *Crabb v. Welden Bros.*, 164 Fed. (2d) 797, merchandise was shipped to a purchaser and stored in a warehouse. The higher court held the interstate character of the goods ended when goods were delivered into actual physical possession of the consignee and were placed in a warehouse. Hence employees of the purchaser who used the goods could not recover overtime compensation under Fair Labor Standards Act.

Considerable discussion has arisen from time to time over the legal question: Is the United States government obligated to pay its employees wages specified by the Fair Labor Standards Act? In *Kruger v. Los Angeles Shipbuilding & Drydock Corporation*, 74 F. Supp. 595, the higher court held in the negative.

Things You Can't Do

YOU CAN'T attach merchandise to secure payment of a debt in your state if the merchandise belongs to a corporation situated in another state. In *Pilgrim Distributing Corp. v. Galsworthy, Inc.*, 76 N. E. (2d) 382, Ohio, Pilgrim, located in Ohio, sued a corporation located in Indiana for \$25,624 and attached as security a carload of whiskey in Ohio belonging to the corporation. The Supreme Court held the attachment invalid because the corporation was domiciled in a different state.

YOU CAN'T be compelled to pay damages to a warehouse patron injured through his own carelessness. For example, in *Smith v. Simon's Supply Co., Inc.*, 76 N. E. (2d) 10, Mass., it was shown that a customer went to a warehouse. A clerk directed him to go down to the cellar. The light on the stairs was dim, and was insufficient to permit the patron to see where he was stepping. He stepped off into space and was severely injured. The higher court refused to allow the patron any damages, and said: "He found himself in the dark, in a place strange to him, and unable to see where he was stepping. Instead of returning to the street floor, he attempted to grope his way down a strange flight of stairs. We think that his conduct amounted to contributory negligence, and bars him from recovering."

PACKING AND PACKAGING

Things You Can Do

YOU CAN avoid paying compensation to an employee who is disfigured but not disabled. See *Lloyd v. Minnesota Valley Canning Co.*, 28 N. W. (2d) 697, Minn., where an employee in a canning

plant sued for compensation for personal injuries resulting only in disfigurement which did not materially affect her employability. This higher court refused to award compensation under the State Workmen's Compensation Act.

YOU CAN compel a buyer to accept risk of damage to a shipment made F.O.B. your plant. For illustration, in *Joseph Martinelli & Co., Inc. v. L. Gilarde Co.*, 73 Fed. Supp. 293, it was shown that cantaloupes were shipped to a buyer "f.o.b. rolling acceptance final." The higher court held that title to the cantaloupes passed to the buyer at the point of shipment and from that point all risk of normal deterioration and damage in transit fell upon the buyer.

Things You Can't Do

YOU CAN'T sell merchandise at less than a price established by a state's Fair Trade Law. For illustration, in *Borden Co. v. Schreder*, 185 Pac. (2d) 581, Oregon, the Borden Co. sued a retail dealer and asked the court to enjoin him from offering for sale a trade-marked commodity called "Hemo" at a price less than the fixed minimum resale price established pursuant to the Fair Trade Act of Oregon. The retailer contended that since he was not a party to any fair trade contract with the Borden Co., he is not prohibited from selling "Hemo" at less than the stipulated price. The higher court refused to agree, saying: "The mere fact that the defendant did not sign any fair trade contract would not relieve him of the duty to conform to the established resale price of 'Hemo,' after having knowledge of such established price."

YOU CAN'T avoid paying wages specified by the Fair Labor Standards Act to employees who handle or transport goods received from other states, employees who unload and check goods shipped in interstate commerce, and employees engaged in shipping goods from warehouses to stores in another state. For example, in *McComb v. Blue, Inc.*, 164 Fed. (2d) 329, the testimony showed facts as follows: A company's general offices serve executives, administrative, purchasing, and general accounting employees as the secretary and general manager, a bookkeeper, a pay roll clerk and switchboard operator. Warehouse employees include a manager, receivers, pricers, order pickers, packers and shippers. The higher court held that all the above mentioned employees are within the scope of the Fair Labor Standards Act and must be paid minimum wages specified by this act, although the employees spent only 15 percent of their time in work relating to the out-of-state business.

INSURANCE AND FINANCE

Things You Can Do

YOU CAN avoid all liabilities assumed by a partnership before you become a partner. In *George*, 74 Fed. Supp. 495, one George invested a large sum in a partnership business on January 1. In subsequent litigation the higher court held that George is responsible for all debts assumed by the partnership after January 1, although he did not know his partners, who had no finances, were obligating the partnership. But the court refused to hold George liable on any obligations assumed by the partnership before January 1.

YOU CAN avoid responsibility on a verbal contract to sell real property although the purchaser paid money on the contract. For example, in *Baker v. Heavrin*, 29 N. W. (2d) 375, Neb., it was shown that one Baker made an oral contract to purchase real property for the agreed price of \$8,000. Relying on the agreement Baker procured a loan of \$5,300, and paid the owner of the property money down. Later the owner of the property informed Baker that he decided not to sell it. Baker sued to compel the owner to sell the property to him for \$8,000, on the grounds that the owner had accepted a down payment, and he could not refuse to complete the contract. The higher court held that Baker could not compel the owner to sell the property.

Things You Can't Do

YOU CAN'T reduce your Federal income tax by forming a partnership and giving interests to members of your family. For example, in *Dawson v. Commissioner of Internal Revenue*, 163 Fed. (2d) 664, it was shown that a man named Dawson entered the automobile business for himself under the name of "Russ Dawson" and conducted the business as sole proprietor until March 1, 1939, when a partnership was formed under the same name. The members of the partnership were Dawson himself and members of his family. An important point is that to effect the change, a number of legal instruments were executed. The purpose of these instruments was to legalize the above mentioned interests in the new partnership. In subsequent suit the higher court held that Dawson must pay income tax based on the total profits, irrespective of the new interests in the partnership business. This court said: "We think that the partnership arrangement between Dawson and his wife, individually and as trustee, was merely superficial and did not change the husband's economic interest in the business."

YOU CAN'T limit your security against suit for destruction of shipped merchandise from the date the merchandise was destroyed. In *Kroblin Transfer v. Birmingham Fire Insurance Co.*, 30 N. W. (2d) 325, Iowa, it was shown that cargo insurance policies were issued to a motor carrier. The limitations in the policy required that suit must be commenced within 12 months after happening of the loss. The court held that this time limit began running from the time judgments in suit were obtained by the shipper against the

motor carrier, and not from the date the cargo was destroyed.

MARKETING

Things You Can Do

YOU CAN cancel all your obligations assumed in a sale contract the instant the other contracting party breaches any clause in the contract. For illustration, in *McManus v. Bendlage*, 187 Pac. (2d) 854, Calif., it was shown that one Bendlage agreed to sell and deliver on a specified date to one Kohlsaat the secret formulae and processes, patent rights, trade-marks, copyrights and trade names, all assets, books and records of his business for a stated cash sum, plus additional monthly payments. Bendlage failed to turn over the secret formulae on the date specified in the contract. The higher court held that this breach on the part of Bendlage relieved Kohlsaat from any further obligations.

YOU CAN recover or keep possession of goods or merchandise mortgaged illegally. For example, in *Peper v. American Exchange National Bank* in St. Louis, 205 S. W. (2d) 215, Mo., the testimony showed facts as follows: Mrs. Peper purchased an automobile from an automobile dealer. She paid the automobile dealer in full for the car. There was in the latter's possession a certificate of title that belonged to this car and no other car. He handed that certificate of title to Mrs. Peper, and said, "Here is where you put your name and address." However, Mrs. Peper did not have her glasses and so the automobile dealer agreed to take back the certificate and register it for Mrs. Peper. Instead of doing this the dealer used the certificate to borrow

money from a bank and mortgaged the car which Mrs. Peper had paid for and actually was driving. In subsequent litigation the higher court held that Mrs. Peper is the legal owner of the car and that the bank cannot take it from her.

Things You Can't Do

YOU CAN'T afford to accept payments from one who has more than one account with you without asking the debtor to specify which account he wants credited. This is so because at any time later the debtor may demand that you credit the amount to an account different from the one to which you applied credit. For example, in *Survis v. McDonald Mfg. Co.*, 28 N. W. (2d) 720, Minn., the testimony showed that a manufacturer's credit manager had a purchaser named Survis arrested on the contention that he had obtained a "Kewanee boiler" from the manufacturer and installed it in premises whose owner paid for the installation, but Survis failed to remit to the manufacturer the purchase price. The purchaser sued both the manufacturer and the credit manager for damages for "malicious prosecution." During the trial the testimony showed that the purchaser had two accounts with the manufacturer. When the purchaser paid the money to the manufacturer he did not specify to what account the payment should be credited. The higher court awarded the purchaser \$4,000 for malicious prosecution, because the money was credited to the "Kewanee boiler," whereby he owed nothing on this account, because later he directed the manufacturer to credit the money to this latter account.

Books & Catalogs

A BASIC MARKETING CHART OF THE UNITED STATES, (7th annual edition—1948), a compilation of workable data designed to facilitate current analysis of business conditions and trends. All data have been prepared for each state and geographic area. A. Edwin Fein, general manager, Research Co. of America, 341 Madison Ave., New York City 17.

FRUEHAUF BUILDS BETTER TRUCK BODIES, 16-p. illus. booklet, reveals the employment of automotive mass production techniques for the first time in the manufacture of truck bodies. Fruehauf Trailer Co., Detroit 32, Mich.

PRICE LIST OF AMERICAN STANDARDS, 24-p. up-to-date list of all national standards approved by the American Standards Assn. The list includes national standards for dimensions of machine tools and parts, rating and testing of electrical equipment, dimensions and identification of pipes and piping, building code requirements, industrial safety and health, occupational clothing, photography, and definitions, abbreviations, and symbols used in technical literature, etc. The new price list makes available a complete set of all American Standards and a complete set of all American Safety Standards. Quantity discounts range

from 20 to 45 percent for quantities up to 1,000 copies. Copies of the list can be obtained free of charge from American Standards Assn., 70 E. 45 St., New York City 17.

PRODUCTION COST TRENDS IN SELECTED INDUSTRIAL AREAS, an impartial study by Dr. Philip Neff, acting chairman of the Dept. of Economics, Pomona College, containing tables and statistics. It carries the imprint of the University of California Press, Berkeley, and is a sequel to "An Economic Survey of the Los Angeles Area," by Frank L. Kidner and Philip Neff. The report deals with pre-war trends now being resumed, with an intimate picture of the markets of all durable and non-durable goods in the cities of Chicago, Pittsburgh, Los Angeles, Detroit, San Francisco, and Cleveland in the decade 1929-1939. The Haynes Foundation, 2324 South Figueroa St., Los Angeles 7, Cal.

TRUCK & TRAILER SIZE & WEIGHT RESTRICTIONS BOOKLET FOR 1948, 51-p., includes the most up-to-date listing of laws affecting size and weight restrictions for commercial vehicles and covers all of the 48 states and explains graphically the differences between the Motor Vehicle Laws of the several states. The Four Wheel Drive Auto Co., Clintonville, Wis.

People in Distribution

For our readers' convenience, items referring to one person only are arranged alphabetically according to the individuals' names. Company news or changes affecting more than one individual are arranged alphabetically by company names. Association items are similarly arranged.

Norman Bailey has been named sales manager for the Toledo division of United Moving and Storage Co. The firm recently purchased the St. Clair Furniture Warehouse to permit expansion. (Kline)

O. W. Bynum has been appointed general sales manager of Carrier Corp.

R. C. Carlin, long associated with the automotive field, has been named assistant sales manager of the Service Sales Div., The White Motor Co.

Norbert B. Knapke has been appointed sales agent in Fort Wayne, Ind., and surrounding territory by the North American Van Lines, Inc. He was formerly associated with the firm in a managerial capacity. (Wimmer)

W. L. Macatee has retired as traffic manager of the Texas Co., New York City, after 36 years with the company.

Harry F. Meyers, Toledo, formerly with Liberty Highway Co., has been appointed general traffic manager of the Lake Motor Freight Line, Inc., with headquarters in Port Clinton, O. (Kline)

Charles E. Nichols, warehouse consultant and Washington representative for American Warehousemen's Assn., Merchandise Div., has moved to new office quarters in the Tower Bldg., 1405 K St., N.W., Washington 5, D. C. Mr. Nichols continues to be associated with AWA's cold storage division, the National Assn. of Refrigerated Warehouses, which now has offices in the same location. In addition to representing American Warehousemen's Assn.'s Merchandise Div. on a part-time basis, Mr. Nichols also serves as consultant and representative of a number of individual public warehouse operations throughout the country.

R. C. Ochs has been promoted to sales manager of the Saginaw Dynamic Devices Div., (Saginaw, Mich.) of Eaton Manufacturing Co., Cleveland.

Thomas T. Parker, pressed metal manufacturing engineer, has assumed his new post in that capacity at the Portland plant of the Hyster Co.

Louis Rose, treasurer of Rose Textile Corp., has been elected a director of United States Plywood Corp.

Eric Schade has been appointed sales manager of the Automotive Div., Grote Manufacturing Co., Bellevue, Ky.

Kneeland B. Wilkes, president of the American Household Storage Co. of Buffalo, has been elected a trustee of the Western Savings Bank of Buffalo. (Toles)

Allegheny Ludlum Steel Corp. has named **W. F. Detwiler** honorary chairman. He has been chairman of the board of directors. At the same time, **Lester H. Bittner**, director of purchases, has been elected to the newly created position of vice president in charge of purchases.

Eastern Air Lines officers were reelected as follows: **Capt. E. V. Rickenbacker**, president and general manager; **Paul H. Brat-tain**, first vice president; **S. L. Shannon**, second vice president; **L. P. Arnold**, vice president; **S. de J. Osborne**, vice president; **T. F. Armstrong**, secretary and treasurer; and **J. W. Moore**, assistant secretary and assistant treasurer.

Mack Trucks, Inc. has announced the appointment of **Harry Bernard** as chief engineer, replacing **W. M. Walworth**, resigned. **John Walker** has been appointed manager of Off-Highway and Mining Truck Sales. **C. F. Larsen** has been named manager of general service and **C. A. Slifer** has been appointed assistant. **George McCall** has been named manager of service engineering.

Pittsburgh Steamship Co., Cleveland has announced the retirement of **W. C. Garbutt** as manager of industrial relations, after 38 years with the firm. **D. L. Buchanan**, his assistant, has succeeded him. (Kline)

Plomb Tool Co. has elected the following directors: **C. W. Coslow**, vice president in charge of manufacturing of the Los Angeles Plant, and **M. M. Mautner**, vice president and secretary.

Railway Express Agency has appointed **Alfred B. Berry**, a New York attorney formerly with the F.B.I., as superintendent of the security division, Prevention and Security Dept. **M. S. Cogan** has been appointed superintendent of the Boston Div. with headquarters at Boston, Mass. Mr. Cogan, formerly assistant to general manager at New York, succeeds **W. J. O'Maley** who has been transferred to general manager of the Mid-Central Dept. with headquarters at Chicago. Mr. O'Maley succeeds **J. G. Shannon**, retired. **Emil J. Hardesty** has been appointed general manager of the Eastern Lakes Dept. with headquarters at Cleveland, Ohio. Mr. Hardesty, previously superintendent of the Detroit, Mich., city division, succeeds **John R. Marra**, transferred. **Gordon A. McLachlan** has been appointed safety director for the Central Depts. with headquarters at Chicago, Ill. Mr. McLachlan, formerly general agent at Indianapolis, Ind., succeeds **George Mackelm**, transferred to superintendent of the Detroit, Div. with headquarters at Detroit, Mich. **Leo F. Schmitt** has been appointed superintendent

of the Southern Nebraska-Iowa Div. with headquarters at Lincoln, Nebr. Mr. Schmitt, formerly general agent at Minneapolis, succeeds the late **H. U. Wilcox**.

Wolverine Storage Co., Detroit, has elected as president, **Richard E. Joyce**, who also is president of Joyce Bros. Storage & Van Co., Chicago. **John W. Sutton**, Detroit, was named vice president.

The Academy of Advanced Traffic has appointed **Cecil Denning**, former Veterans' Administration Training Specialist and Army instructor in transportation, to be resident manager of its Philadelphia branch.

American Management Assn. has appointed **Lawrence A. Appley**, vice president of Montgomery Ward and Co., as president. **Alvin E. Dodd**, AMA president for the past 12 years, has been appointed to the newly created post of honorary President.

American Steel Warehouse Assn., NEW YORK CHAPTER, has elected as president, **Paul Grammer**, president, Grammer, Dempsey & Hudson, Inc., Newark. Other officers are: First vice president, **James Mead**, district manager, Joseph T. Ryerson & Son, Inc.; second vice president, **Rodney Burton**, district manager, Jones & Laughlin Steel Service, Inc., Long Island; treasurer, **James Bragg**, vice president, Eggleston Bros., Lang Island City, and secretary, **Charles Kramer**.

SOUTHERN CALIFORNIA CHAPTER has elected as president, **Wayne Rising**, vice president and general manager, Ducommun Metals & Supply Co. Other Officers are: Vice presidents, **J. Thomas Mahl**, president, Mahl Steel & Supply Co., and **T. L. Kisbough**, Joseph T. Ryerson & Son, Inc., treasurer, **G. C. Holly**, Service Steel Co., and secretary, **W. H. Lindberg**, Earle M. Jorgensen Co.

The Central Warehousemen's Assn. of Ill., Inc., elected **John F. O'Byrne**, Champaign, Ill., president for the coming year. He succeeds **Alex K. Scherer** of Ottawa, Ill. Other officers named were **James Lawrence**, Springfield, Ill., vice president, and **A. J. Thieme**, Peoria, Ill., secretary-treasurer. Chosen as directors for two year terms are: **Mr. O'Byrne**, **Mr. Thieme**, **James Burke**, Rock Island, Ill.; **Percy Prior**, Evanston, Ill., and **Miss Bess Scheidt**, Streator, Ill. Mr. Prior is also president of the Illinois Furniture Warehousemen's Assn.

Toledo Transportation Club has elected as president **R. E. Deitmeier**, transportation manager of the Textile Leather Corp., Toledo. Others elected were: **Phil Schorr**, first vice president; **H. G. Huhm**, second vice president; **C. H. Lorenz**, renamed secretary-treasurer, and **H. E. Arbaugh**, **D. G. Holmes**, **W. R. Weber**, **Ray Mougey**, **A. E. Schultz**, **John J. Hill**, **K. C. Kaltenmark**, and **L. D. Tipton**, members of the executive committee. (Kline)

Transportation Club of Terre Haute has elected **E. L. Hollis** as president. Other officers elected are: **Lee Culbreth**, general traffic manager, Commercial Solvents Corp., first vice president; **James Maloney**, general agent and manager, Commercial Motor Motor Freight, Inc., second vice president, and **William Nadzeika**, traffic manager, Stran Steel Div., Great Lakes Corp., treasurer. **William F. Thoms**, assistant traffic manager, Terra Haute Brewing Co., was re-elected secretary for the tenth year. (Wimmer)

Coming Events

June 26-Sep. 11—International Industrial Exposition, Atlantic City, N. J.
 July 1—New Orleans' International Trade Mart.
 Aug. 10-13—First Western Packaging Exposition and Conference on Packaging, Packing and Shipping, San Francisco Civic Auditorium.
 Sep. 27-Oct. 1—Third National Plastics Exposition, The Society of The Plastics Industry, Inc., not open to general public, Grand Central Palace, New York City.
 Oct. 6-9—National Aeronautical & Aircraft Display, Society of Automotive Engi-

neers, Hotel Biltmore, Los Angeles, Cal.
 Oct. 8-13—Annual Convention, American Trucking Assns., Washington, D. C.
 Oct. 14-16—Annual Convention, Southwest Warehousemen's & Transfermen's Assn., Skirvin Hotel, Oklahoma City, Okla.
 Jan. 10-14, 1949—Annual & Engineering Display, Society of Automotive Engineers, Book-Cadillac Hotel, Detroit, Mich.
 Feb. 7-10—58th Annual Convention, American Warehousemen's Assn., Fairmount Hotel, San Francisco. (Joint meeting of both divisions: National Assn. of Refrigerated Warehouses and AWA Merchandise Div.)

DISTRIBUTION BRIEFS

American Chain of Warehouses, Inc. has announced through its secretary, John Terreforte, the following new members: Ford Storage & Moving Co., Omaha, Nebr.; Grand Trunk Warehouse & Cold Storage Co., Detroit, Mich.; Mifflin Avenue Warehouse Co., Scranton, Pa.; Rock City Storage Co., Inc., Little Falls, N. Y.

American Express Co. has opened a new International Air Cargo Shipping Office at the Miami (Fla.) International Airport under the management of Clair B. Mong, former cargo manager. TACA Airways, to help promote the use of air shipping on a world-wide scale.

The Glenn P. Crissman Co. is exclusive sales distributor in Detroit for Magline, Inc., of Pinconning. Magline, Inc., manufactures magnesium alloy parts, such as dock boards, for the material handling industry. (Vitkauskas)

Expressways, Inc. is a new trucking company. It is a motor freight common carrier, with terminal offices in Fort Wayne and Angola, Ind.; Chicago, and Jackson and Lansing, Mich. Headquarters are located in the OIM Transit Corp. Terminal in Fort Wayne. Increasing trucking demand outstripped the usefulness of the OIM Transit certificate and resulted in formation of the new organization, according to President Glenn L. Hackett. Officers of the new organization are Mr. Hackett, formerly secretary-treasurer and operations manager, as president; Lloyd Jacobs, secretary-treasurer; E. W. Bohren, Fort Wayne terminal manager; James McGillicuddy, Chicago terminal manager, and Glen Short, traffic manager. (Wimmer)

Harnischfeger Corp., Milwaukee, has established a new division to serve railroads exclusively, under the jurisdiction of their general traffic manager, George A. Schmus, who has a full knowledge of railroad requirements through many years of experience.

Lexington Warehouse Co., Youngstown, O., has been incorporated by Robert B. Weimer, Arthur K. Friedman, and Evan J. Rummell. (Kline)

Motor City Co-Operative, Inc., has opened its first warehouse, situated in Detroit. (Wimmer)

The A. B. Murray Co., Inc. has announced the opening of an additional warehouse and shop for the distribution and fabrication of tubular steel products, in the Pittsburgh district.

National Assn. of Refrigerated Warehouses, Inc. has moved its offices to the Tower Building, Washington 5, D. C.

Pan American World Airways and the Matson Navigation Co. have announced the signing of an interline agreement to promote combined air-sea travel between points served by the Matson Line and those served by Pan American.

Portable Service Equipment Co. of Philadelphia, Pa., has been appointed eastern distributor for TRACT-R-LIFT.

The Trailmobile Co., builders of commercial trailers, has acquired exclusive world sales and manufacturing rights of The Broquinda Corp., makers of transport refrigeration.

Tri-City Storage Corp., has been incorporated by George E. Wilcox, Nicholas A. Rossi and George W. Greene. Mr. Wilcox operates George's Moving Service at Albany, N. Y. (Toles)

U. S.-Mengel Plywoods, Inc., has opened a new warehouse in Tampa, Fla., to be jointly owned by the two companies, United States Plywood Corp. and The Mengel Co. The building contains 11,200 sq. ft. of concrete floor space and has excellent loading and unloading facilities. The Tampa operation will be under the supervision of W. S. Green, Jacksonville branch manager.

The Whiting Corp. of Harvey, Ill., has announced that it has taken over the business and plant of Spencer & Morris, Inc., of Los Angeles, Cal., and will continue the manufacture of the tramrail-type materials handling systems which Spencer & Morris have distributed. The plant will be operated as the Spencer-Morris Div. of the Whiting Corp. Mr. S. H. Hammond is president of Whiting Corp.

AIR RATE MUDDLE

(Continued from Page 51)

petitive pressures which drive the rate structure generally to unremunerative levels." To provide for the possibility of developmental rates and to permit flexibility and experimentation the Board will be receptive to requests for exemptions from the minimum rates in particular instances "where such exemptions are necessary to the proper development of air cargo or to remove inequities or disparities within the rate structure."

It remains to be seen what standards for reductions below the minima, are prescribed by the Board but there is a danger that they may be so severe as to have a seriously detrimental effect on the legitimate development of air cargo by discouraging those promotional and experimental efforts which are so essential to a new and developing form of transportation.

Under the present minimum rate order a carrier can not make a rate reduction below the set minima except at some risk. The carrier would not only have to develop a formula for allocation of costs and investment, knowing that the Board might not accept the formula in proof of the justification of a rate less than one of the minima, but it would also have to estimate its future costs and revenues, including estimates of future volume of operations. In an industry characterized by sharp fluctuation in volume of traffic and in operating costs, this would not be an easy matter. It is believed that the Board's action in setting minimum rates, even at the comparatively low point that they have been made, will tend to discourage, if not eliminate entirely, all voluntary rate reductions below the 16 and 13 cent minima, and to preclude all promotional and experimental rates designed to develop new traffic. Rate regulation in the manner undertaken by the Board cannot be an adequate substitute for the operation of competitive forces in keeping rates at the lowest, economically feasible levels.

AIRLINE TARIFFS

(Continued from Page 66)

by changing the existing tariff other than by cancelling and replacing it must be identified with the tariff to which they apply. They must also be numbered consecutively for each tariff. Three copies of the new tariff, supplement or amended page must be filed with the CAB accompanied by a letter of transmittal in prescribed form. A complete file of all tariffs issued by the carrier or its agent, and also of tariffs in which the carrier concurs, must be maintained permanently in the carrier's general office, or in the office of its tariff publishing agent. The carrier's employees are required to give information and to assist inquirers in examining any tariff of the carrier without requiring that the inquirer explain the reason for the inquiry.

Special Tariff Permission

The Civil Aeronautics Act authorizes the board to permit changes in tariffs on less than statutory notice, and also to permit departures from the board's other tariff regulations. The grant of permission is at the discretion of the board and will be given only when good cause is shown. Application for departure from the standard regulations must be made to the board in a prescribed form, and the application must be supported at that time by valid reasons for requesting the privilege.

There are three general conditions under which permission to amend a tariff on less than statutory notice is granted automatically. They are:

1. To correct material already filed, but not yet in effect.
2. To cancel material suspended by the regulatory body.
3. To insert material relating to the inauguration of new services.

In the case of withdrawn material or new service the board must always be notified in writing of the circumstances under which

the changes are being made. Rates or rules applying to new routes, or to new points on existing routes, may be established on not less than one day's notice.

From time to time other circumstances are almost certain to arise under which a carrier will wish to make changes in a tariff on short notice. Clerical or typographical errors may be considered typical examples. Here the necessary special permission of the board may ordinarily be expected. On the other hand, a desire to meet the rate change of a competing carrier which has given the statutory notice will not, of itself, be regarded by the board as a sufficient reason to grant exemption from the thirty-day requirement.

An important change was made in the procedure of handling applications for changes on less than statutory notice when Amendment No. 3 of Section 224.1 of the Economic Regulations was placed in effect by the board on June 4, 1946. The purpose of the amendment was to simplify and expedite the entire procedure of granting or denying applications for special permission. Under its terms the responsibility for approving or denying applications for changes on short notice is now placed with the Director of the Economic Bureau instead of being handled by the entire board, as in the past.

Powers of Attorney and Concurrences

Carriers subject to the Civil Aeronautics Act are required to grant powers of attorney to the agents who publish their tariffs. Such a grant authorizes the agent to act in the name and stead of the carrier, but may be limited to confer on him only that degree of authority which the carrier wishes to allow. It similarly acts as ratification by the principal of the acts of the agent.

The power of attorney, prepared in prescribed form, is filed with the CAB. A copy is held by

the agent, and another is retained by the principal. The power of attorney may not authorize the agent to delegate his power to any other person. On the other hand, it must name an alternate agent who assumes authority at once in the event of the death or disability of the principal agent. The power of attorney may be revoked upon a notice of not less than forty-five days filed with the board. A similar notice of revocation, in approved form, must be served on the agent whose power is being revoked. The new agent may be appointed by a power of attorney prepared and filed in the manner described above.

A carrier may give to another carrier the power to establish rates and/or rules for it, and adopt the tariffs so published, by filing a concurrence with the board. The concurrence must be submitted in a definite, prescribed form, and may be worded in such a way as to establish only that degree of concurrence which the carrier may desire. A copy is given to the publishing carrier and another copy is retained by the concurring carrier, as in the case of power of attorney. Concurrences may be revoked in the same manner as powers of attorney.

When a power of attorney or a concurrence is revoked, the tariffs affected must be revised or cancelled effective upon statutory notice. If this action is not taken, the rates, fares or charges on file remain applicable, and must be enforced.

The detailed regulations governing air carriers' tariffs, with respect to their authorization, publication, posting, filing, amendment and revocation are contained in the regulations issued by the Economic Bureau of the Civil Aeronautics Board.¹³

¹³ Ibid., Section 224.1 of the Economic Regulations: Filing, Posting and Publishing of Tariffs of Air Carriers and Foreign Air Carriers, and Amendments.

(Editor's Note: The Editor regrets that space limitations make it impossible to publish Dr. Wilson's article in its entirety in one issue. Part II will conclude the series next month. Save this section so that the full cogency of Dr. Wilson's argument may be appreciated.)

Public Warehouse Section

Warehousing is an integral part of distribution in several ways. Public warehouses are not merely depositories for the safeguarding of personal effects or industrial commodities; many are equipped to perform a wide range of services in addition to storage. Among these services are:

Bottling, boxing, financing, fumigating, grading, handling, hauling, labeling, motor transportation, mothproofing, moving, operation of public truck scales, quick-

freeze facilities, rental of space for manufacturing, offices and showrooms, rigging, sales representation, sample distribution, sorting, stevedoring and various other functions for efficient and economical distribution.

This special advertising section of public warehousing has been consolidated for ready reference and maximum utility. It includes merchandise, refrigerated, household goods and field warehouses. For shippers' convenience, states, cities and firms have been arranged alphabetically.

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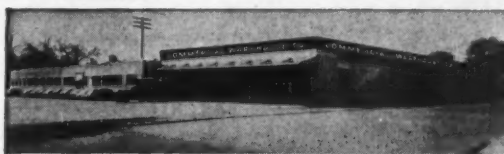
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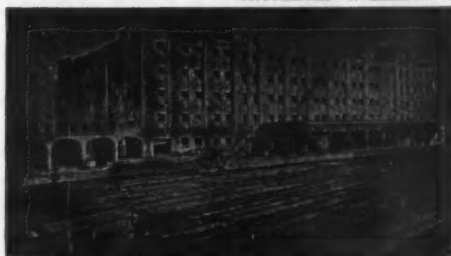
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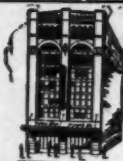
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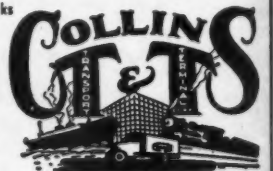
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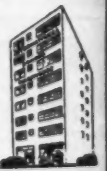
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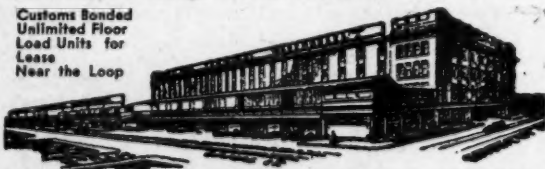
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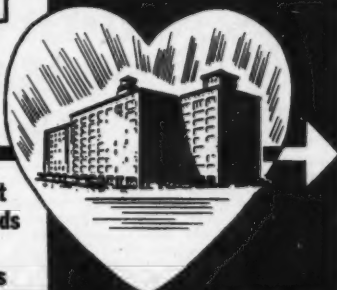
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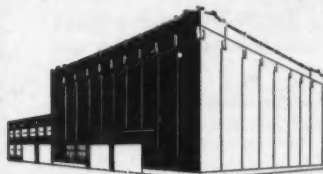
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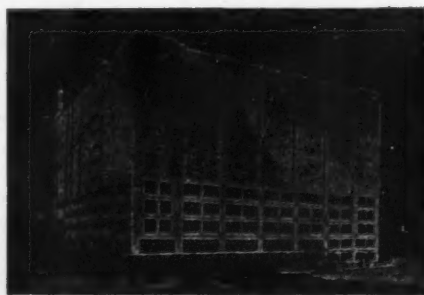
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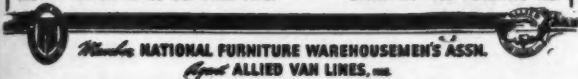


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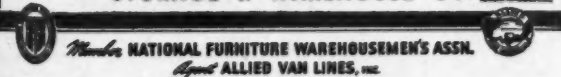
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The Southern Storage & Distribution Co. is in
the heart of Durham, providing the logical,
modern-minded organization to serve your
warehousing and distributing needs with
economy and efficiency.

Merchandise Storage, Pool Car Distribution,
Private Sidings, Reciprocal Switching, Sprin-
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A. W. deCAMP, Pres.—Trans



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CAROLINA STORAGE & DISTRIBUTING COMPANY

MERCHANDISE STORAGE
POOL CAR DISTRIBUTION

Private Siding

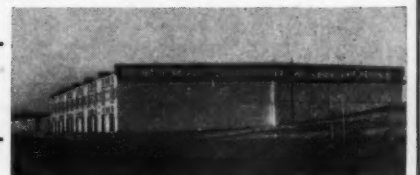
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Union Storage & Transfer Company FARGO, N. DAK.

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MOTOR FREIGHT TERMINAL

WAREHOUSE CO.

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WATER, RAIL AND
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entering the city, can be handled from freight car direct
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Complete service for
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Pennsylvania Railroad and Lowry Avenue

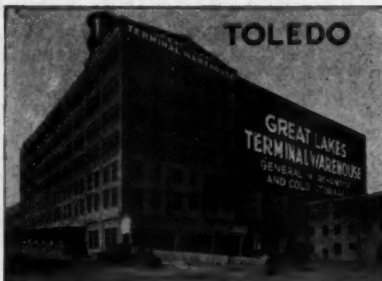
A warehouse service that embodies every modern facility for the storage and distribution of Household Goods and Merchandise — Motor Freight Service.

Member of A. W. A.—O. W. A.



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CAR CAPACITY
800—COLD
400—DRY
FOUR PRIVATE
SIDINGS
N.Y.C. AND
B.&O. RR's



GREAT LAKES TERMINAL WAREHOUSE CO.
321-359 MORRIS ST. TOLEDO 4, OHIO
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MERCHANTS AND MANUFACTURERS WAREHOUSE CO.

Office and Main Warehouse: 15-23 So. Ontario St., Toledo 3
CENTER OF JOBBING DISTRICT
Sprinklered Buildings—100,000 square feet Dry Storage—70,000 cubic feet Cool Storage—Private Sidings—Nickel Plate Road. Free Switching. Merchandise Storage—Pool Car Distribution—Negotiable Receipts—Transit Storage Privileges—Low Insurance Rate—City Delivery System.



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100,000 Square Feet Dry Storage of which 45,000 Square Feet is heated for winter storage—Sprinklered Buildings—Complete ADT Fire and Burglary Protection—5 Car Siding—New York Central Railroad—Free Switching—Pool Car Distribution—Transit Storage Privileges—Merchandise Storage—Negotiable Receipts—Low Insurance Rate—City Delivery Service—Leased Space.



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MOVING
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FIREPROOF WAREHOUSES
Tulsa Oklahoma

MULTI-STORY WAREHOUSE

(Continued from Page 52)

or 4,000 lb. per man hr. Stored on the sixth floor, the distance from car to stack would be approximately 120 ft.

A single story refrigerated warehouse procedure would exclude the elevator man and second fork truck operator. The pallet load would be heavier, since the fork truck could be of a larger capacity. The loading of the pallet would

still govern the speed of the operation. At the same rate of speed, men would take approximately five minutes loading a 2,000 lb. pallet. There would be 25 pallet loads to a 50,000 lb. car, taking 125 min. to complete. With two less men than a multi-story operation, this would amount to 8 1/3 man hours or 6,000 lb. per man hour.

Operators of multi-story re-

frigerated warehouses cannot expect to gain the same tons per man hour as a single story operator. However, they can't afford to overlook the possibilities of a palletized method as a means of improving their present operations.

Palletization of multi-storied warehouses is still in its infancy. Only by attacking the problems and passing along to fellow warehousemen the experience which is gained, will the whole industry benefit.

and Firms are Arranged Alphabetically

TULSA, OKLA.

R. W. PAGE, President

PAGE STORAGE & VAN LINES

1301 So. Elgin, Tulsa 5



Storage—Moving—Packing—Shipping of Household Effects and Works of Art—Silver and Rug Vaults



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LOCAL CARTAGE AND
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549 W. Randolph St., Chicago 5, Randolph 4453

BUTLER, PA.

C. W. NICHOLAS, Pres. Est. 1903

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Pool Car Distribution Packing and Crating
5 Car Siding Free Switching

2 Warehouses 41,000 sq. ft.



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IN ERIE IT'S

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FOR COMPLETE STORAGE SERVICE AND POOL CAR DISTRIBUTION TO SURROUNDING TERRITORY.

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N.K.P. RR.

1503 SASSAFRAS
N.Y.C. RR.

HARRISBURG, PA.

INC. 1902

HARRISBURG STORAGE CO.

COMPLETE STORAGE & POOL CAR DISTRIBUTION SERVICE

100% PALLETIZED

PENNSYLVANIA RAILROAD SIDING

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YOUR BEST MOVE

*Erie's Complete
Warehousing
Service*



M. V. IRWIN is Erie's Mayflower agent offering unexcelled Warehousing, Storage and Transportation facilities.

- BOXING
- SORTING
- STORAGE
- FUMIGATING
- PUBLIC SCALES
- MOTHPROOFING
- MOVING
- HAULING
- LABELING
- FINANCING
- RUG CLEANING
- STEVEDORING

TRANSPORTATION
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STORE DOOR DELIVERY ARRANGED FOR
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Est. 1915



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LANCASTER, PA.

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Low Insurance Rates



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Our type vans for speedy delivery anywhere. We distribute
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bonded and free.

13 MODERN WAREHOUSES

In Key Locations in the Philadelphia Trading Area

Over three million square feet of modern storage
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to the best advantage.

Buildings are thoroughly staffed and equipped
for the safe storage and fast, efficient, economical
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also offers special facilities for the suitable stor-
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Connections with both the Pennsylvania Railroad
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Fireproof Warehouses — Household Goods
125,000 sq. ft. 62,500 sq. ft.

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Complete ADT burglar and fire alarm protection

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Private Tracks Connecting with All Railroad and Steamship Lines.
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"Good housekeeping, accurate records,
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Perfect service



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"Service to the entire Mid-South"

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Local Delivery Service

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Merchandise storage, dependable service, free switching. Local cartage
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Watchman

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SPECIALTY**

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Fireproof Warehouses—A.D.T. Automatic Fire and Burglary Protection

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Merchants & Transfer Bldg., San Antonio 6
Complete Storage and Distribution Service
Over 50 years of satisfactory service
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CHANDISE — COLD

STORAGE — CARTAGE

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Bonded under the Laws of Texas

General Storage and Distribution from the Center of
East Texas. Specializing in Pool Car Distribution
and Merchandise Warehousing

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Since 1920

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POOL CAR DISTRIBUTION

MERCHANDISE AND COLD STORAGE

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Sprinklered

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Pool Car Distribution

Office Facilities

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DISTRIBUTION SERVICE, INC.

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and Firms are Arranged Alphabetically

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OPEN YARD STORAGE AVAILABLE

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A.W.A.
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Three Fireproof Storage Warehouses—810,000 Cubic Feet Floor Space—Automatic Sprinkler System—Low Insurance Rates—Careful Attention to Storage—Packing and Shipping of Household Goods—Private Railroad Siding—Pool Car Distribution—Motor Van Service to All States—Freight Truck Line. Member of N. F. W. A. — A. W. A.

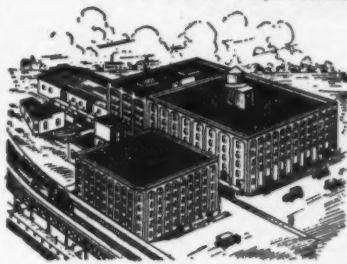
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SPRINKLERED

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DISTRIBUTION

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20c PER \$100
PER YEAR



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Pool Car Distributors

General Merchandise Storage

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Represented by
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Capacity 500 Cars

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NEW YORK 10
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1928 ADVANTAGE

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Complete local and over-the-road truck services with 70
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40 Car Track Capacity
Modern Handling
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CMSP&P, G&NW Lines
Reciprocal Switching all
lines

HONEYCOMB

(Continued from Page 70)

other reasons, including structural specifications, cell sizes can be made smaller.

Faces between which this honeycomb core is sandwiched and to which it is bonded are adaptable to product or construction requirements of wide variety. Among possible selection of materials adaptable to Honeycomb faces are high strength, high modulus metals such as stainless steel, aluminum and magnesium; two or more ply decorative veneers, or high or low pressure laminated plastic sheets; Fiberglas, which for electrical properties is used with Fiberglas

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The bond of Honeycomb to faces is the key to good Honeycomb structure.

The most natural application for Honeycomb core structures and one where weight is extremely important is in the manufacture of aircraft and of railway cars. In the field of railway transportation, Honeycomb now is undergoing tests for floors, partitions, doors, shelving, table tops, and work surfaces. Never before in history has a material so nearly approximated an ideal condition of balance between weight and strength as this one in which man took a lesson from the bee.

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and Firms are Arranged Alphabetically

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Service Minded

"Store American" For Economical Efficient Complete Merchandise
Specialists in POOL CAR DISTRIBUTION
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W
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LARGEST AND MOST MODERN

MILWAUKEE, WIS.



LINCOLN

WAREHOUSE COMPANY
MERCHANDISE WAREHOUSING
AND DISTRIBUTION

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Automobile storage. Warehousing on unit basis for spot stocks. Storage
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National Warehouse Corporation

— STATE BONDED —

EVERY CONCEIVABLE WAREHOUSE &
DISTRIBUTION SERVICE AFFORDED



A.D.T. Service

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C. & N.W.R.R. Siding



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—Phone Marquette 7091

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Seven Buildings to Meet All Requirements for Modern Storage
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Customs Bonded. Pool Car Distribution. Household Goods
Moved, Packed, Shipped and Stored.
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220,000 SQ. FT. OF MODERN FIREPROOF SPACE
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Westmount Transfer & Storage Ltd.

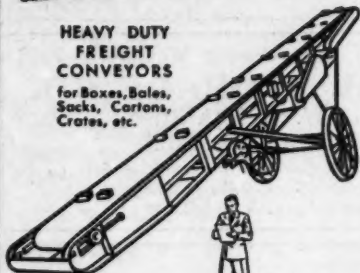
205 Olivier Ave., Westmount, P. Q.
LOCAL AND LONG DISTANCE MOVERS
Private Room System for Storage
CRATING, PACKING and SHIPPING
Charges Collected and Promptly Remitted
Member: N. F. W. A., Can. W. A.



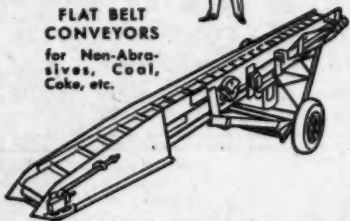
**Cut down your
handling costs!**

TROWBRIDGE PORTABLE CONVEYORS

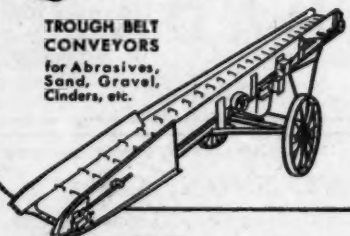
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FREIGHT
CONVEYORS**
for Boxes, Bales,
Sacks, Cartons,
Crates, etc.



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for Non-Abr-
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For fast handling of freight—in any size or shape—at terminals, piers or warehouses, TROWBRIDGE heavy duty freight conveyors can save you money on every ton handled. Available for prompt shipment with gas or electric power. Portable conveyors have been manufactured by TROWBRIDGE for more than 25 years and are sold and serviced nationally by over 200 trained representatives. Write for descriptive literature today; no obligation.

MAKES LIGHT WORK OF HEAVY LOADS!
TROWBRIDGE
CONVEYOR COMPANY

855 VAN HOUTEN AVE., CLIFTON, N. J.

Affiliate of MEMCO—Mfrs. of Magnetic Separators

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I			
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● This picture sequence shows the ease of assembly and why Fruehauf All-Steel Truck Bodies are ready for the road in merely a matter of a few hours. Any Fruehauf Factory Branch can assemble one as you want it and install it on your truck chassis — or you can do it. The body combinations are practically limitless — more than 500. And, production-line manufacturing makes possible remarkably low prices.

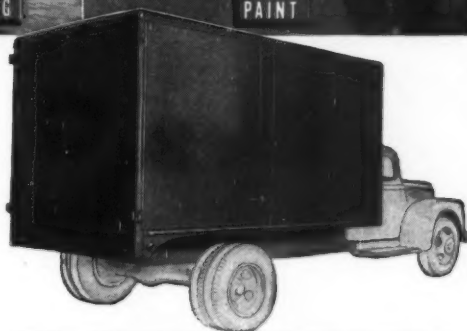
BODY DIVISION

FRUEHAUF TRAILER COMPANY

DETROIT 32 • LOS ANGELES 11

In Canada: Weston, Ontario

79 Factory Service Branches



**CUSTOM-BUILT QUALITY
PRODUCTION-LINE PRICED**

See These Bodies at your Fruehauf Factory
Branch or Distributor



4 Basic Models • • • Hundreds of Combinations!

FRUEHAUF

TRUCK BODIES

Vanishing American

THE PICTURESQUE FREIGHT HANDLER of yesteryear is as out of place at Harborside as a horse-drawn fire engine on city streets. Men now operate fork-trucks to do the fetch-and-carry jobs, the lusty lifting . . . stack their palletized loads safely, swiftly, compactly, ceiling-high. Mechanical brawn has largely supplanted human toil in this great rail-water terminal.

This highly mechanized, 100-percent-palletized handling is just one of the numerous time- and money-saving advantages which Harborside offers you. Here are 27,000,000 cubic feet of combined dry- and cold-storage, office, and distributing space, under one vast roof. Here is strategic location, with unexcelled shipping facilities by rail, truck, and water.

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AERIAL SURVEYS, INC.

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